Canada Alberta

FOREST RESOURCE DEVELOPMENT AGREEMENT
ENTENTE SUR LA MISE EN VALEUR DES RESSOURCES FORESTIERES

Canada Alberta

The Canada-Alberta Forest Resource Development Agreement is a subsidiary agreement of the Canada-Alberta Economic and Regional Development Agreement, which provides coordination and cooperation between the governments of Alberta and Canada in areas of Alberta's economic development.

The Canada-Alberta Forest Resource Development Agreement is funded equally by the governments of Canada and Alberta, from April 1, 1984, to March 31, 1989.

Its primary objectives are to ensure the long-term availability of timber supplies; to optimize timber uses; and to contribute to the growth and diversification of Alberta's economy.

The Agreement comprises three programs: Reforestation; Applied research, technology transfer and opportunity identification; and Public information, evaluation and administration. These programs are managed by a joint Directorate and are implemented by the Canadian Forestry Service and the Alberta Forest Service.

L'Entente Canada-Alberta sur la mise en valeur des ressources forestières est auxiliaire à l'Entente Canada-Alberta sur le développement économique et régional, qui vise à assurer la coordination et la coopération des deux gouvernements relativement au développement économique de l'Alberta.

L'Entente Canada-Alberta sur la mise en valeur des ressources forestières est financée à parts égales par les gouvernements du Canada et de l'Alberta, et a cours du 1er avril 1984 au 31 mars 1989.

Ses objectifs principaux sont assurer la disponibilité à long terme de réserves de bois; optimiser leur utilisation; et contribuer à la croissance et la diversification de l'économie de la province.

L'Entente comprend trois programmes: Reboisement; Recherche appliquée, transferts de connaissances techniques et relevé des occasions; et Information, évaluation et administration. Ces programmes sont gérés par un Bureau de direction conjoint, et mis en oeuvre par le Service canadien des forêts et le Service forestier de l'Alberta.

For more information, please call or write:

Pour de plus amples informations, veuillez vous adresser à:

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Attention: D. Fregren

WESTLAM: GLUE LAMINATED WOODEN BEAMS PRODUCT ACCEPTANCE AND MARKET DEVELOPMENT

WESTERN ARCHRIB

1988

J. FARGEY

THIS IS A JOINT PUBLICATION OF THE CANADIAN FORESTRY SERVICE AND THE ALBERTA FOREST SERVICE PURSUANT TO THE CANADA-ALBERTA FOREST RESOURCE DEVELOPMENT AGREEMENT

4315 - 92 Avenue, EDMONTON, Alberta T6C 4G1

89-05246/

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DISCLAIMER

The study on which this report is based was funded under the Canada-Alberta Forest Resource Development Agreement.

The views, conclusions, and recommendations are those of the authors. The exclusion of certain manufactured products does not necessarily imply disapproval nor does the mention of other products necessarily imply endorsement by the Canadian Forestry Service or the Alberta Forest Service.

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ISBN 0-662-16478-4

Catalogue No. Fo 42-91/53 - 1988E

Additional copies of this publication are available at no charge from:

Regional Development
Canadian Forestry Service
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Edmonton, Alberta
T6H 3S5

1.0 SCOPE OF PROJECT

The undertaking was to obtain the acceptance of WESTLAM glued laminated wooden beams in markets additional to Alberta, primarily in the province of Ontario and to a lesser degree in the provinces of Saskatchewan, Manitoba, and British Columbia. The process required acceptance from:

1. Building Authorities
2. Potential users including secondary manufacturers such as truss fabricators.
3. Building designers, architects, engineers, design draftsmen (product specifiers).

2.0 HISTORY

WESTLAM had been introduced to the province of Alberta, Saskatchewan, and to the Northwest Territories in the previous year with very encouraging initial results. Canada Mortgage and Housing Corp. approval had just been obtained; technical data and tables had been developed albeit further publications were required for the wider market.

Acceptance of WESTLAM in the province of Ontario faced the difficulty of a total lack of familiarity with glued laminated beams by the designer/specifier. For all practical purposes that product was unknown and unavailable. Our assessment before undertaking the task indicated that although the initial production would be costly and difficult, the potential market size was tremendous; there was a real need for a product such as WESTLAM to complement the growing demand for structural wood systems.

3.0 METHOD OF IMPLEMENTATION

3.1 OBTAINING ACCEPTANCE BY BUILDING AUTHORITIES:

3.1.1 ONTARIO

a. Presentations were first made to the Ontario Ministry of Housing by Brian Watson, C.E.T. and David Himmelfarb, P. Eng. in the spring of 1987. Ted Szabo, Gov't of Alberta, assisted with the presentation; a letter of approval was received from the Ministry of Housing soon thereafter.

b. City of Toronto - E. Grell made a presentation to Kathleen Figuerua and other building plan examiners and westlam was approved. A future presentation to building plan examiners and building inspectors has been requested.

c. Other Authorities - C.M.H.C. approval, a copy of which is attached as Appendix "A", was received under a previous contract. Through trade shows and dealer presentations, continuing contact with building officials and inspectors is made on a one-to-one basis.

3.1.2. SASKATCHEWAN, MANITOBA, ALBERTA, & B.C.

General approval had been received by the spring of 1987. However we have in numerous instances made presentations to Building Officials to assist them in code compliance of Westlam many times at their request. The following examples are typical:

November 1987 - Presentation to the Annual Meeting of Saskatchewan Building Officials - at their request.

February 1988 - Presentation to the City of Lethbridge building officials.

In B.C. although a limited sales effort has been expended, there have been no Westlam presentations. It was deemed advisable to concentrate our efforts on the development of the Ontario market and the conversion of our traditional prairie market from Fir glulam to Westlam. Although potential does exist in B.C., it was our assessment that these other areas should be given a higher priority on the basis of potential.

3.1.3. MATERIAL USED AND PRESENTATION FORMAT TO BUILDING OFFICIALS

The usual presentation involved:

a. Video "WESTLAM" produced by Western Archrib.
b. A summary of technical information explaining the appropriate application and method of installation.
c. How to confirm sizes using tables of the WESTLAM product manual.
d. Question and answer period, normally involving matters of fire rating, cutting, drilling instructions level of technical support available, etc.

The Appendices illustrate the material used.

3.2 POTENTIAL USERS ACCEPTANCE

3.2.1 STANDARD APPLICATIONS - ONTARIO

The first tasks in gaining WESTLAM acceptance in the Construction Industry were:

1. Identify the potential user for WESTLAM.

2. Provide availability of WESTLAM for these users.

WESTERN ARCHRIB elected to distribute through truss manufacturers because of their direct contact with contractors and retail lumber dealers. Truss manufacturers design roof structural systems for prospective buildings and WESTLAM has proven to be a very desirable component of these systems. Our experience in western Canada confirmed that this channel provides the most direct exposure to the user.

Education of, first the truss fabricators, then through them their customers, involved many seminars and presentations. A summary of these seminars is attached as Appendix "B". The seminars involved a presentation similar to that given to Building Authorities with more emphasis on price advantages, proper use, stocking, and marketability of the product. The sequence of seminars generally was:

1. Firstly to the Jager Industries licensed Truss Manufacturers - a group of approximately thirty companies dispersed throughout Ontario.

2. Of these we selected the interested and potential dealers and made presentations to their technical and sales staffs on the marketing and use of WESTLAM.

3. Next we made presentations to interested customer groups in conjunction with the truss manufacturers. These consisted of contractors, retail lumber dealers, prefabricated building manufacturers, technical schools, etc.

4. Trade shows, home shows, etc., sometimes in conjunction with truss manufacturers and sometimes on our own.

3.2.2 CUSTOM APPLICATIONS OF WESTLAM - ONTARIO

There are many applications of WESTLAM which involved a more sophisticated technical level of expertise than is usual e.g. architecturally - featured structures such as churches, recreational buildings, etc. For these applications we have an arrangement with Timber Systems and Components Ltd. Markham, Ontario who have the capabilities in design, shop detailing, etc. to service this market. Our technical representative, Toronto, maintains a service to this firm, referring enquiries and answering their needs regarding WESTLAM.

3.2.3 SASKATCHEWAN AND MANITOBA

In addition to many presentations on a one-to-one basis, exhibits were entered in the following Trade Shows:

April 7-9, 1988 - Index 88 - Regina, Saskatchewan.

March 1988 - 3 days Winnipeg Home Show

3.3 PRODUCT SPECIFIERS

3.4.1 ONTARIO

Presentations to these clients are on a one-to-one basis, usually in the client's office. This is a continuous process making contacts through dealers and elsewhere. Two trade shows which provided good exposure to this sector were:

1. Specifications Canada Trade Show, Feb. 1 - This was open to architects, engineers, contractors, and developers - we made direct contact with forty interested individuals.

2. Construct Canada - Convention Centre Toronto, May 31 - June 2. A very prestigious show directed to the construction industry.

Classified as "Other Specifiers" are such firms as portable classroom builders and any other potential users which we might identify in the course of doing business in the area. Portable classroom builders, who represent a 800M fbm market annually, have been converted to the use of WESTLAM.

3.3.2 SASKATCHEWAN AND MANITOBA

Our work in these areas has been similar to that in Ontario. Saskatchewan has been very well covered with presentations to similar groups. Our representative Dennis Zilinsky, P. Eng. has spent most of his time working with specifiers, substituting WESTLAM for other structural material. Although work has been done in Manitoba a more concentrated effort will be required in the future. Acceptance by building code authorities is general. However, an awareness of the product and its availability needs to be increased among the users.

3.4 TECHNICAL SUPPORT SERVICES

In all areas - building authorities, specifiers and users - the high level of technical support has been the real key to the acceptance of WESTLAM. This has included:

1. Quality technical literature including span tables, construction details and application illustrations. See Appendices "D" and "E".

2. Specific Engineering - on a continuous basis dealers refer requests for size of WESTLAM members and, in Ontario particularly, an engineer's certificate covering the sold beam is necessary. This represents a growing demand on our engineering department. See Appendix "D".

3. Seminars, representation to building authorities and presentations. Engineer participation in these presentations and the development of related material has been significant.

4.0 SUMMARY AND RESULTS

There is a need for a major continuing development in order to gain market acceptance. We are pleased with the current level of results in Ontario, but had not anticipated the six month, costly period before results began to occur. Particularly gratifying measures of our acceptance in the Ontario market are:

1. Dealers are now purchasing truckload quantities of WESTLAM for inventory.

2. We are now being requested to present our seminars. Two future presentations are (a) Truss Manufacturers of Ontario (b) City of Toronto building inspectors.

As of approximately February 1988, the efforts at promotion in Ontario began to result in specific and significant orders for WESTLAM. In the month of May 100M fbm WESTLAM was shipped to Ontario. The order file for June is similar. On an annualized basis this would represent 1.2MM fbm.

In all regions the amount of WESTLAM has now become 75% of our total volume, - this currently represents 4.5MM fbm on an annualized basis.

All the 4.5MM fbm is an import replacement and much of it represents "Standard Stock Beams" which is essentially new business for the Company and the industry. This has been the prime target of the WESTLAM development program. On the basis of the past three months we should realize a significant continuing growth in the consumption of WESTLAM - probably to a total volume of 6 - 8 MM fbm within the next twelve to twenty-four months.

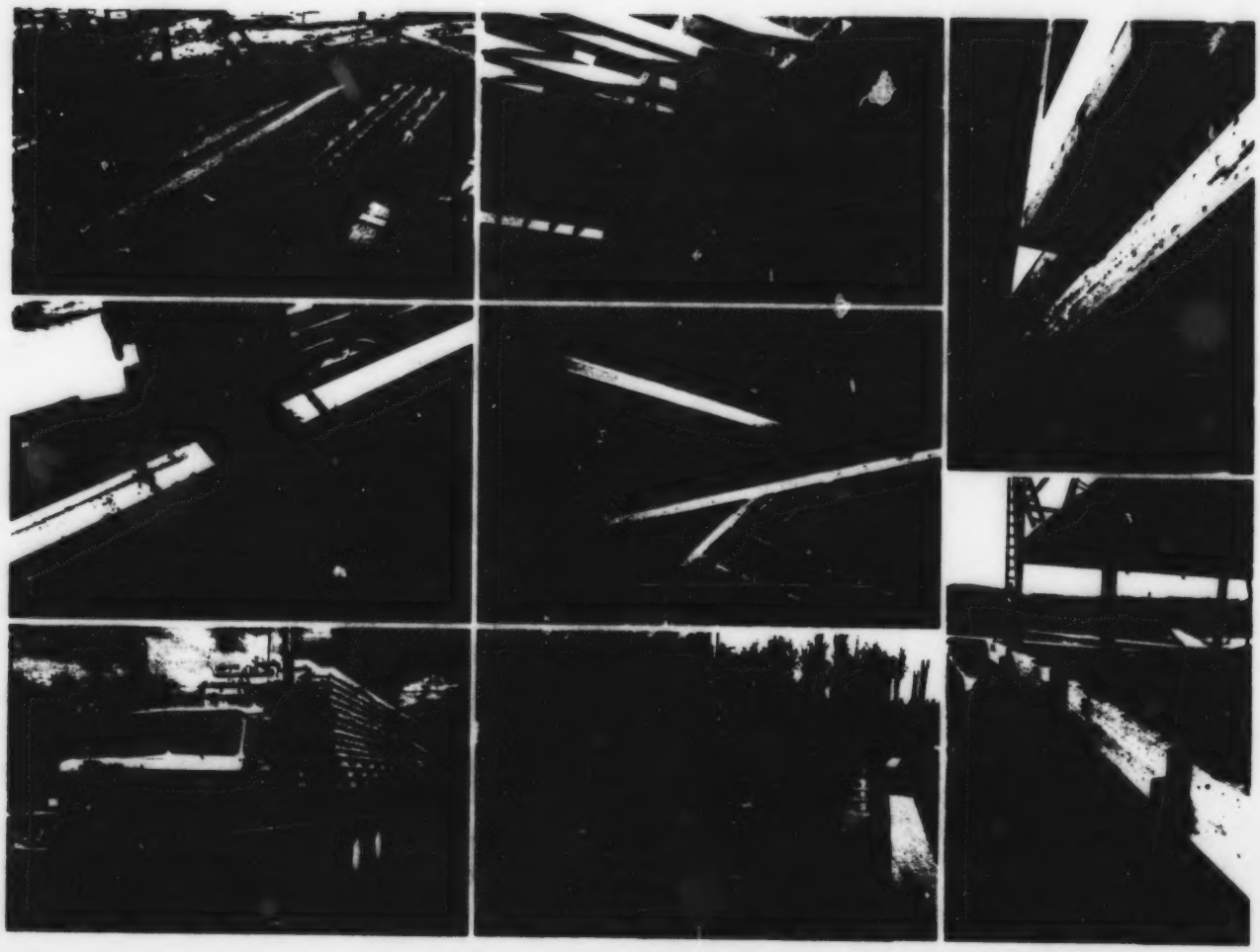
On the basis of the 4.5MM fbm (current rate) there is an additional $1,200,000.000 per year of lumber being purchased in Alberta at a 25% premium over commodity prices. This material was previously being purchased by WESTERN ARCHRIB in the U.S., in douglas fir, or not at all.

WESTERN ARCHRIB's plant at Boissevain, Manitoba (acquired in September 1987) has just been certified for the manufacture of WESTLAM and in the week of May 31st filled its first order of WESTLAM. We would estimate an additional 1 - 1.5 M of WESTLAM within two years from that plant.

In order to estimate the increased employment generated it is necessary to estimate what the base might have been without WESTLAM. We estimate that the Edmonton plant is employing twelve additional persons with a potential for twenty persons. In Boissevain, to date, the impact has not occurred. However, we view the manufacture of WESTLAM there as absolutely essential to the viability of that operation and would project a requirement of an additional 10 persons in reasonable time.

We believe that future activities similar to those already undertaken must be continued and the results will be very satisfactory.

WESTLAM



APPENDIX "D"

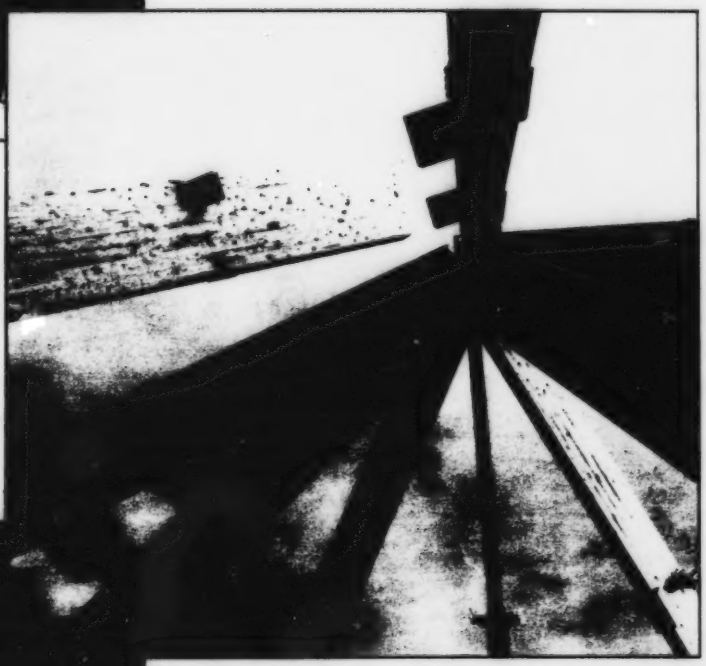
Brochure demonstrating applications. Many of these pictures are used in our Seminars

BY WESTERN ARCHRIB

WESTLAM is a glued-laminated timber product for use in **residential, commercial, industrial** and **agricultural** applications. WESTLAM, manufactured from Spruce and Lodgepole Pine, was developed to provide a reliable, high strength structural wood product utilizing Canadian forest resources.

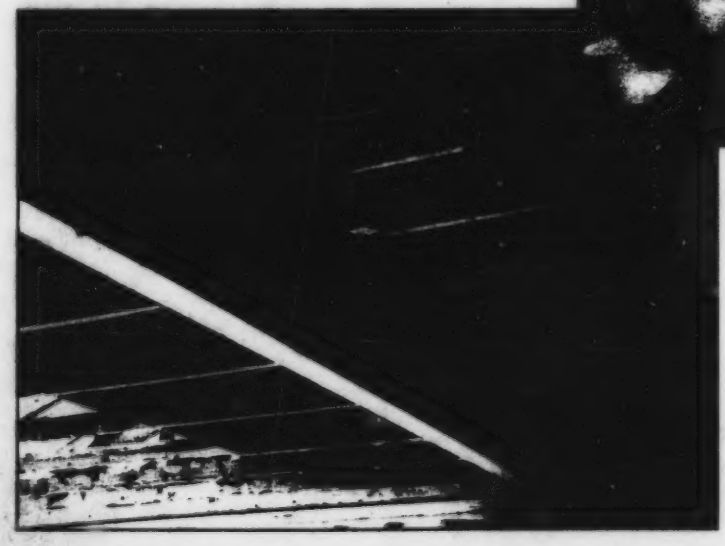
HIGH STRENGTH

WESTLAM beams provide the designer with a bending strength to weight ratio superior to 300W steel.



RELIABLE

WESTLAM flexural and stiffness properties are based on a comprehensive testing program of full scale beams. Manufacture is by Western Archrib with independent quality control inspections provided by Warnock Hersey Professional Services Ltd. (See C.M.H.C. Evaluation Report No. 11402.) For technical information including load charts, span tables, allowable unit stresses and architectural specifications ask for the WESTLAM PRODUCT MANUAL.



PRICE COMPETITIVE

Manufactured from Canadian grown Spruce and Lodgepole Pine, WESTLAM provides an economical alternative to steel, solid sawn, or L.V.L. beams. Applications range from single headers to entire beam and column systems. WESTLAM is one of the most economical structural products available.

COMPATIBILITY

WESTLAM beams are the natural choice for supporting members of plate trusses, WOODI's or conventional wood framing materials. Joist hangers and ledgers can be easily nailed to WESTLAM beams, reducing the need for complex end cuts and costly bolting of nailer plates.

LIGHT WEIGHT - EASY TO FRAME

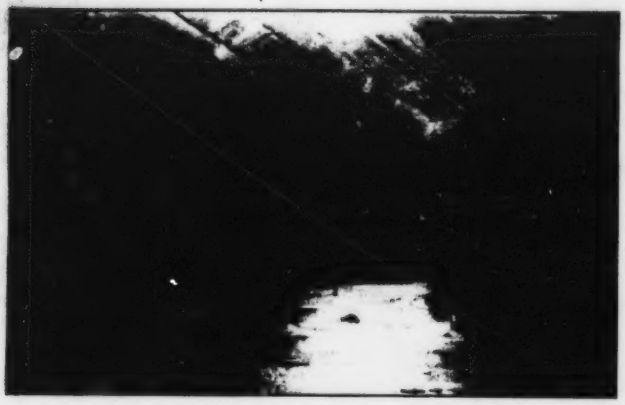
WESTLAM is lightweight and can quite often be erected without special equipment. WESTLAM can be easily cut, drilled and framed on site allowing you maximum flexibility at the framing stage.

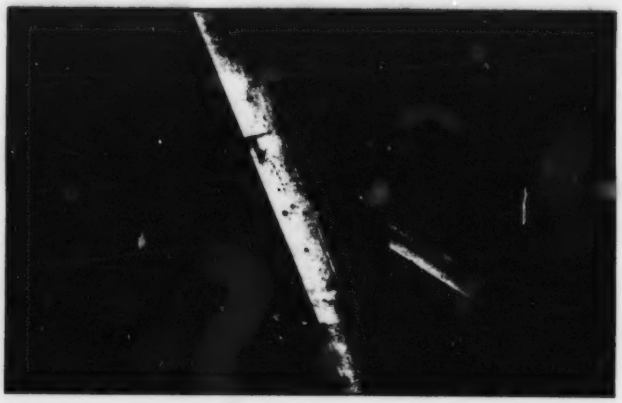
READILY AVAILABLE

The large inventory maintained by WESTERN ARCHRIB as well as inventory held by stocking Dealers, ensures prompt delivery. Stock sizes are available in 3" and 5" widths and various depths. For non-stock items refer to your local WESTERN ARCHRIB representative or stocking Dealer.

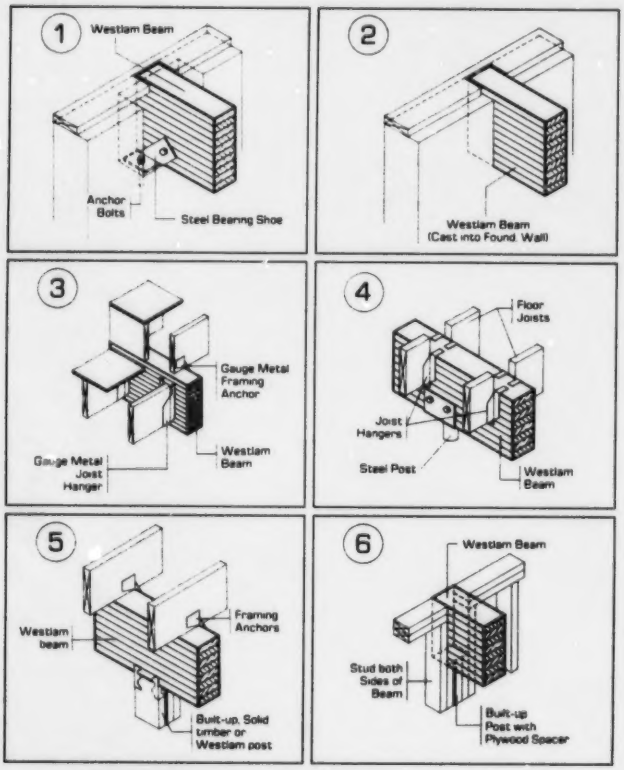
ARCHITECTURAL APPEAL

WESTLAM's **planed grade finish** (standard for stock sizes) is suitable for many exposed applications. Where a varnished or high gloss appearance is required, specify **sanded grade.** WESTLAM products are supplied with one coat of surface sealer and are individually wrapped for jobsite shipment.

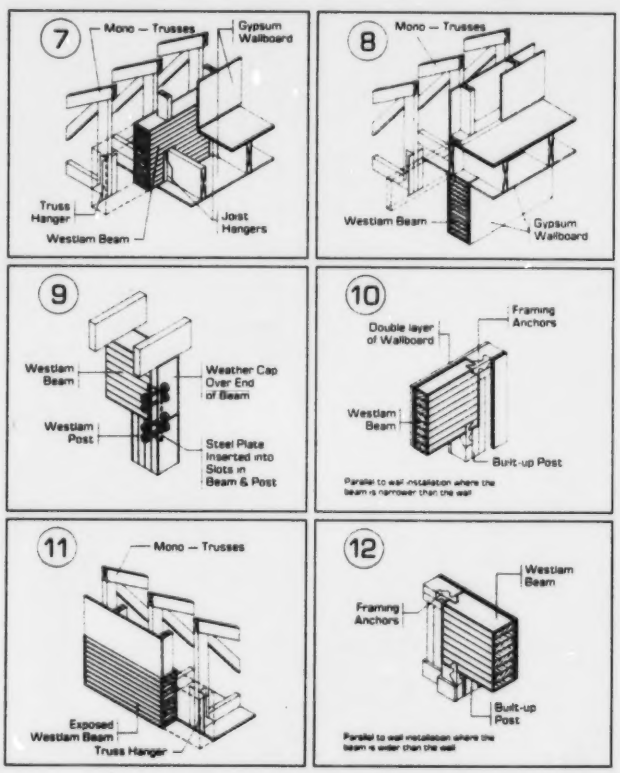




DETAILS - FLOOR FRAMING



DETAILS - ROOF FRAMING



WESTERN ARCHRIB

BEAMS TRUSSES ARCHRIBS

HEAD OFFICE / PLANT
P.O. BOX 5648, EDMONTON, ALBERTA T6C 4G1
PH. (403) 465-9771 FAX (403) 469-1667

MANITOBA OFFICE / PLANT
P.O. BOX 580, BOISSEVAIN, MANITOBA R0K 0E0
PH. (204) 534-2486 FAX. (204) 534-2236

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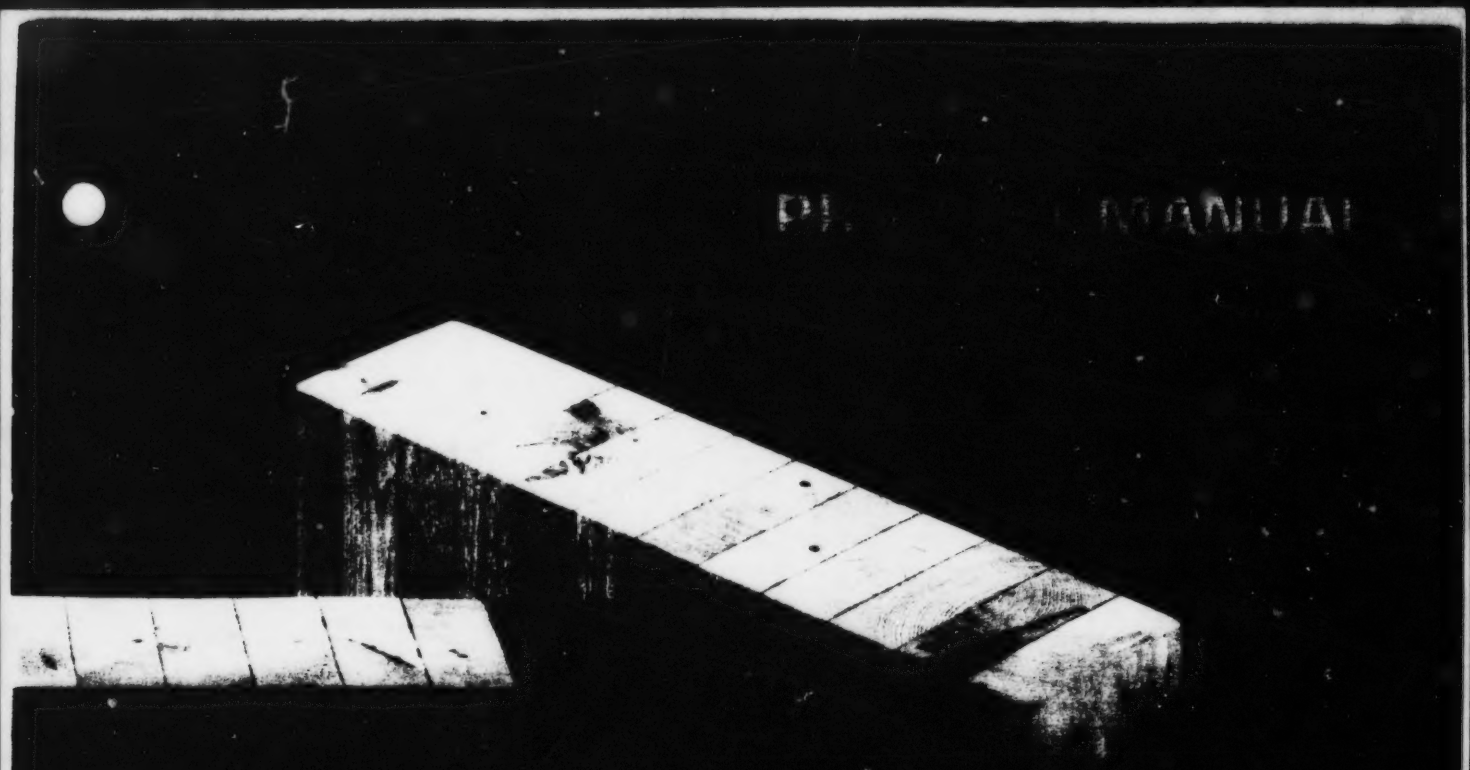
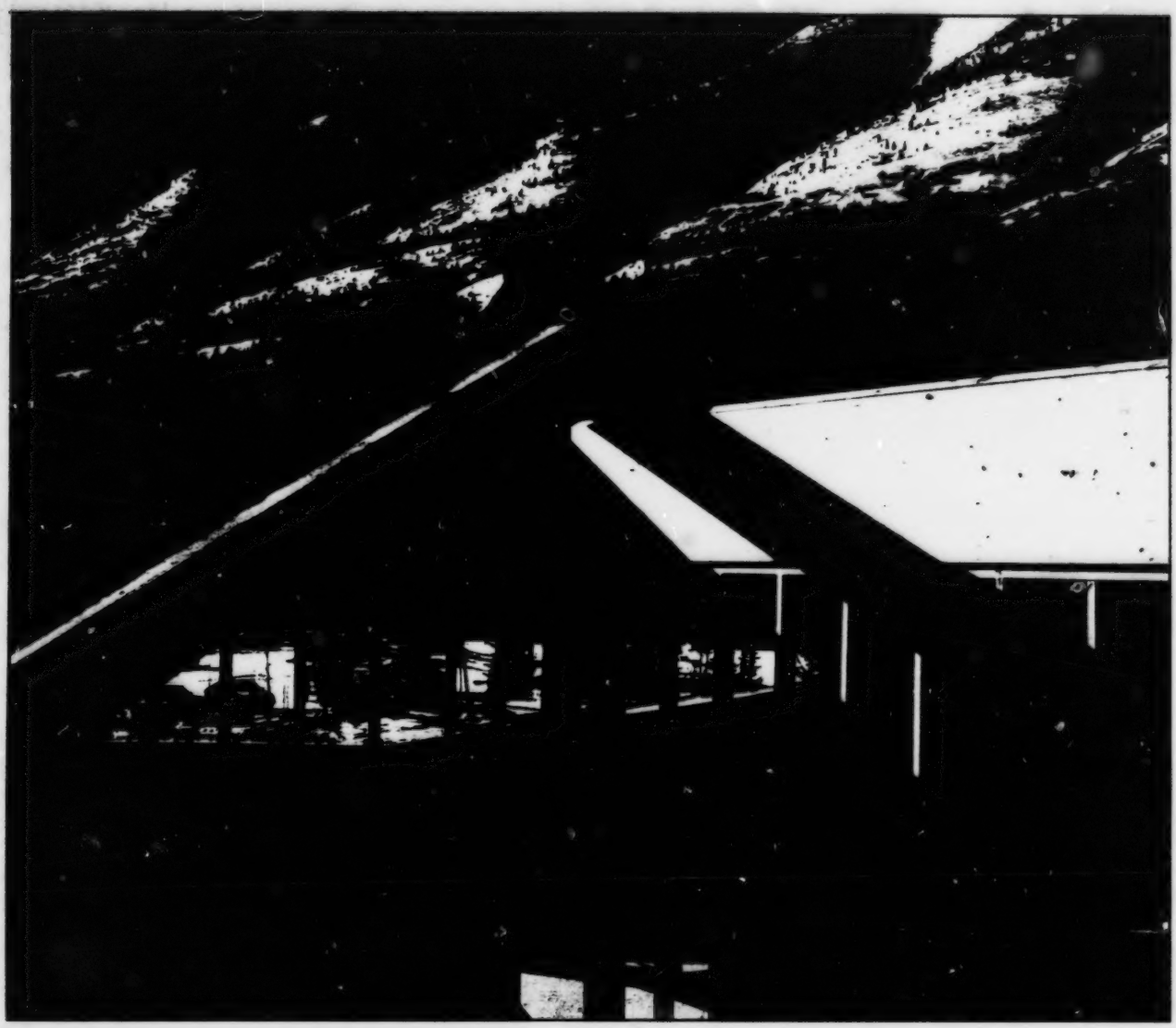


APPENDIX "E"

Product Manual

WESTLAM



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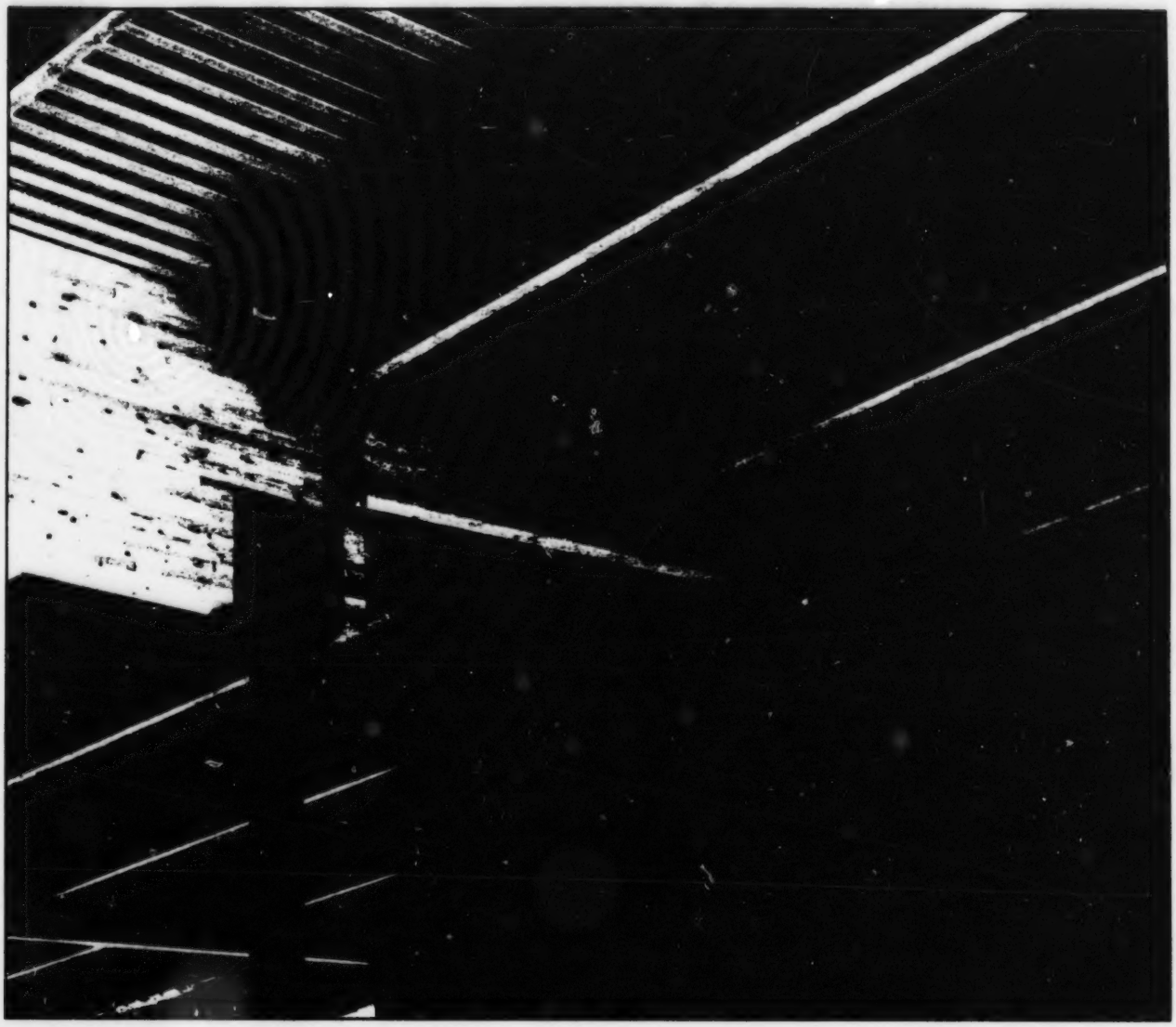


WESTLAM GLUED-LAMINATED TIMBER

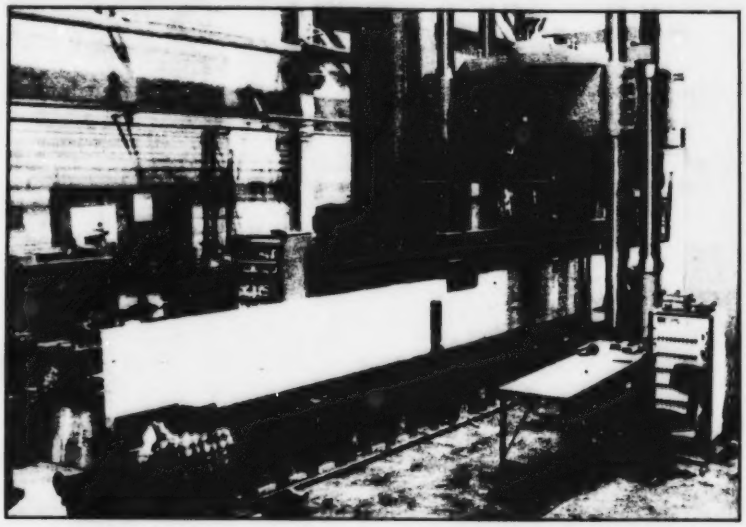
PRODUCT DESCRIPTION

Westlam Glued Laminated Timber is manufactured from E-rated Western Spruce and Lodgepole Pine in a precise grade combination. Waterproof Phenolic Resorcinol Adhesive is used for fingerjointing and face bonding.

Westlam is a 100% Canadian product developed from a comprehensive testing programme with the objective of producing a safe, reliable, economical structural member utilizing Canadian forest products.

Westlam glued-laminated members, consistent in quality, are:

- available in a wide range of widths, depths, and lengths;
- lightweight;
- able to be used in both wet and dry service conditions;
- compatible with other structural products;
- able to be used as an exposed member;
- price competitive with other structural products.



TESTS

Westlam flexural and stiffness properties are based on a comprehensive test programme conducted jointly by Western Archrib, Alberta Research Council and the Canada Forestry Service. Testing of the beams was done at the University of Alberta.

Test results have been independently verified by T.A. Eldridge & Associates Consulting Engineers Ltd.

MANUFACTURE

Fabrication is by Western Archrib with independent Quality Control inspections provided by Warnock Hersey Professional Service Ltd.

The highest quality of Glulam production is assured through an extensive program of Quality Control procedures conducted by a highly trained staff.

Particular emphasis is taken in the control of moisture content, forming of end joints, and in the gluing, clamping, and curing of the laminations.

ACCEPTANCES

See C.M.H.C. Evaluation Report No. 11402.

SIZES

Westlam is manufactured in a wide range of widths, depths and lengths. Standard product is available in widths of 3", 5", 6¾" and 8½".

Minimum depth is 4½", increasing in 1½" increments to 48".

(Larger widths and depths are available.)

SURFACE GRADES

PLANED

- Fully planed surface free of excess glue and skip marks.
- Significant knot holes, skips in planing, voids and similar defects on exposed surfaces shall be filled or made good with inserts.
- Bottom corners of beams are chamfered.

This surface grade is suitable for most applications other than where varnish or high gloss finish is specified.

SANDED

- Exposed surfaces are planed. Knot holes, voids and similar defects are filled or made good with inserts, and sanded. Normal secondary sanding marks are permitted.

This surface grade is recommended for use where appearance is a prime consideration and where it is the intent to apply a varnish or similar finish.

CAMBER

Unless other wise specified, all Westlam members 12" in depth and over are manufactured with a Standard Camber. Camber is recommended in a structural member to reduce the amount of perceived deflection (i.e. sagging). Refer to the following table for the amount of camber provided:

LENGTH-CAMBER	STANDARD CAMBER TABLE		LENGTH-CAMBER
10' - 3/32"	20' - 7/16"	30' - 1"	40' - 1 3/4"
12' - 5/32"	22' - 1/2"	32' - 1 3/32"	42' - 1 7/8"
14' - 7/32"	24' - 5/8"	34' - 1 1/4"	44' - 2 1/16"
16' - 9/32"	26' - 3/4"	36' - 1 3/8"	46' - 2 3/16"
18' - 11/32"	28' - 7/8"	38' - 1 9/16"	48' - 2 1/2"

DESIGN STRESSES

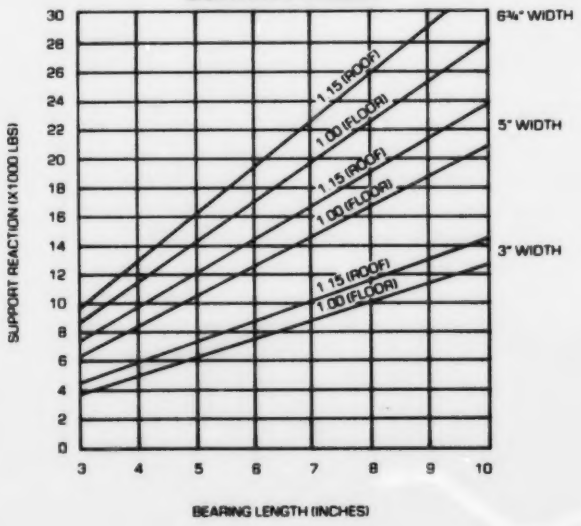
ALLOWABLE UNIT STRESSES (psi)						
GRADE DESIGNATION	SERVICE CONDITION	BENDING AT EXTREME FIBER DUE TO POSITIVE BENDING MOMENT*	BENDING AT EXTREME FIBER DUE TO NEGATIVE BENDING MOMENT*	MODULUS OF ELASTICITY	COMPRESSION PERPENDICULAR TO GRAIN	LONGITUDINAL SHEAR
WESTLAM E	DRY	2,000	770	1,500,000	415	145
	WET	1,600	615	1,350,000	275	125
WESTLAM EX	DRY	2,000	2,000	1,500,000	415	145
	WET	1,600	1,600	1,350,000	275	125

* For 12-inch depth. For other depths, multiply by the factor $C_f = \left(\frac{12}{d}\right)^{1/9}$ where d = Actual Beam Depth (inches) i.e.:

DEPTH	6	7½	9	10½	12	13½	15	16½	18	19½	21	22½	24	25½	27	28½	30
MULTIPLIER (C_f)	1.08	1.05	1.03	1.01	1.00	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.92	0.91	0.91	0.90

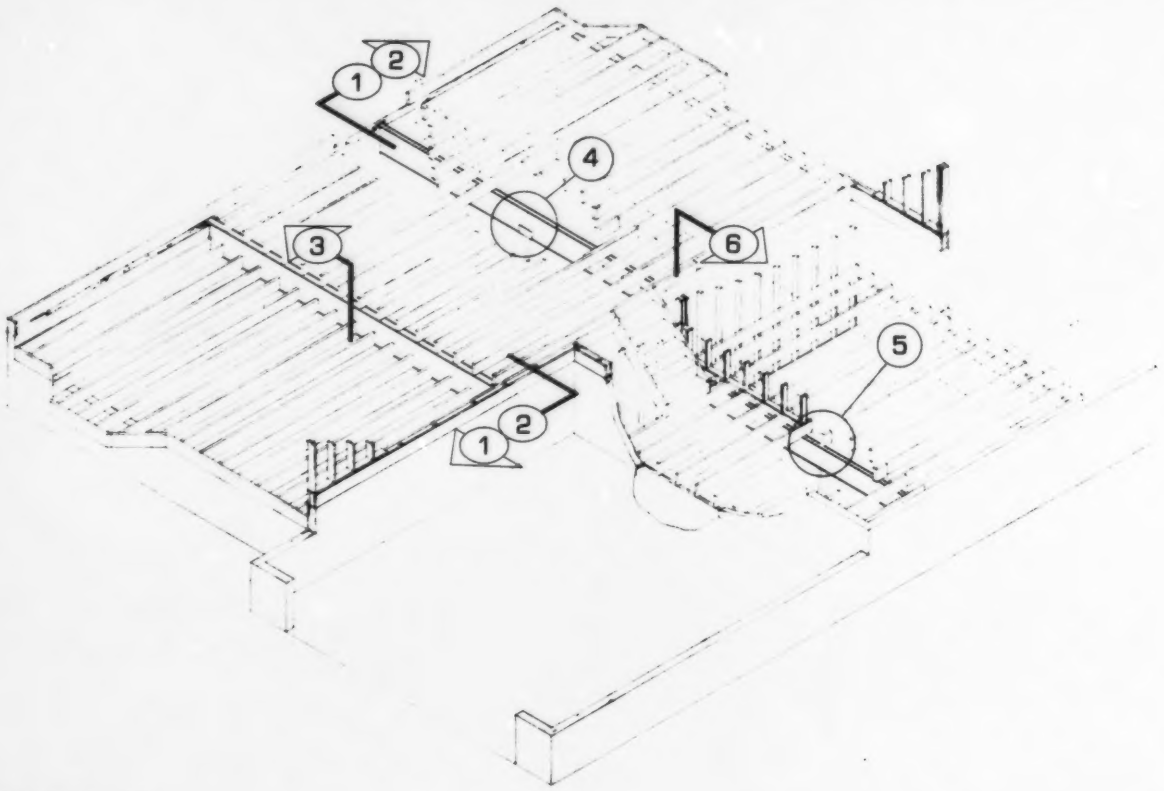
BEARING LENGTH

BEARING CHART



1. Chart based on 415 psi allowable compression perpendicular to grain on tension face. (Dry service conditions.)
2. A minimum of 3" bearing is recommended.
3. Bearing across full width is assumed.
4. Assumes structural adequacy of support member.

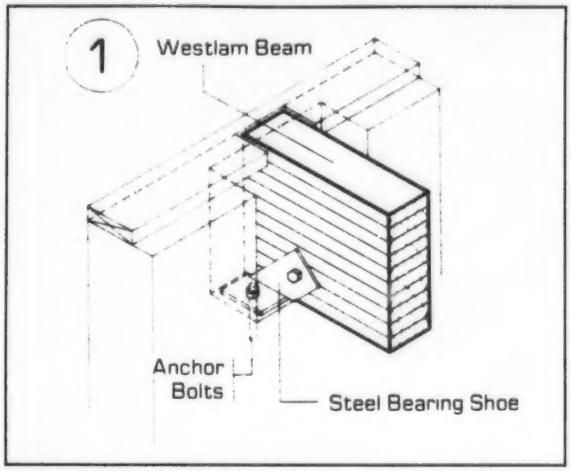
TYPICAL FLOOR FRAMING

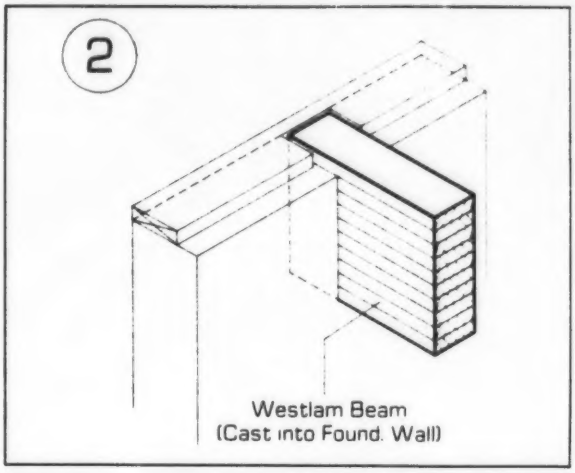


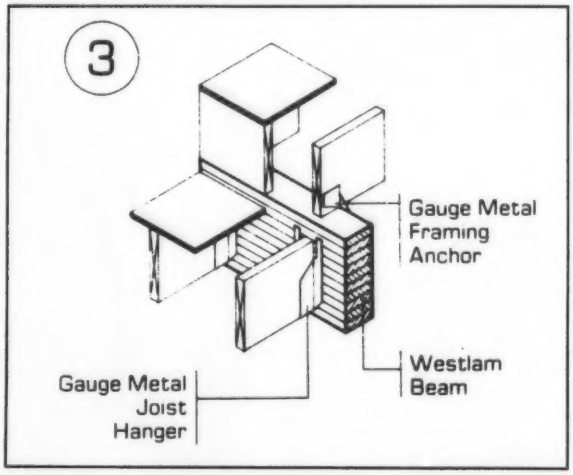
WESTLAM

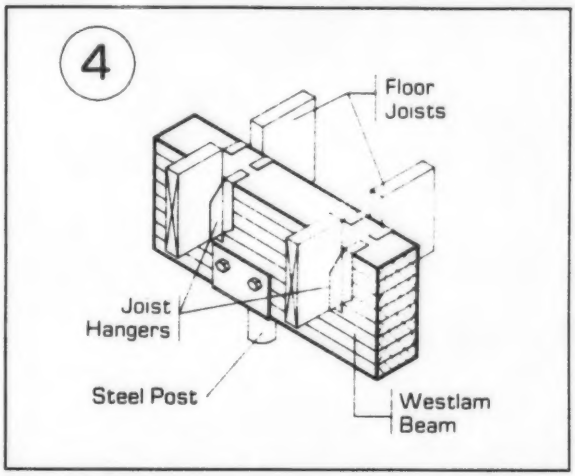
- Allows for long spans while maintaining excellent performance.
- Low moisture content virtually eliminates shrinkage that is common in dimensional lumber.
- Westlam is light in weight when compared to alternate structural products. Used in residential construction, it can normally be installed using come-alongs, jacks, or other light equipment common on most job sites.
- Joist hangers and ledgers can be easily nailed to Westlam, eliminating the need for complex joist end cuts and costly bolting of plates.
- Westlam is manufactured from Western Spruce and Lodgepole Pine, and is easily cut and framed, using conventional carpenter tools.
- 100% Waterproof Adhesive used in all Westlam - allows it to be used in framing areas of high humidity such as pools, hot tubs, and exterior applications.

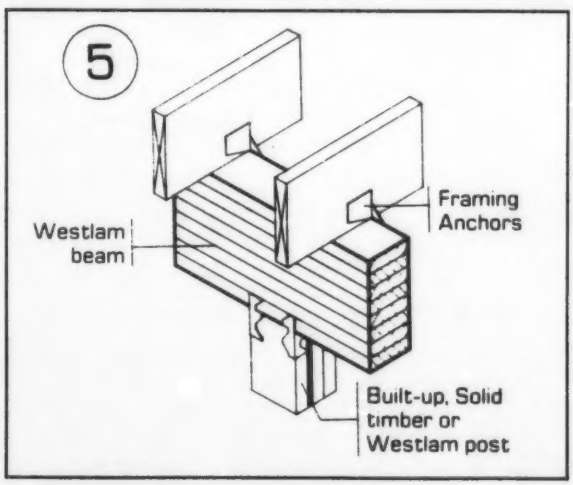
DETAILS: FLOOR FRAMING

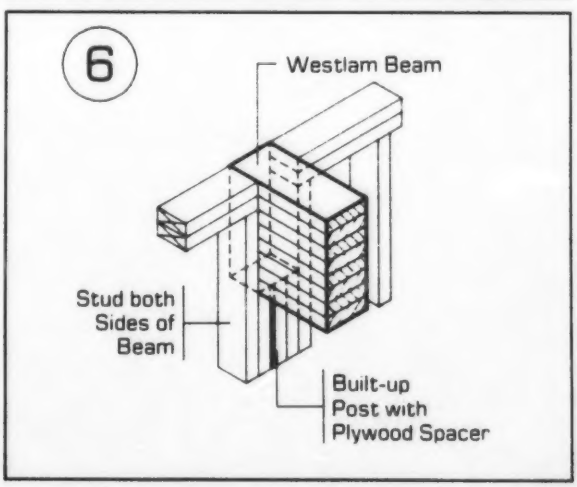




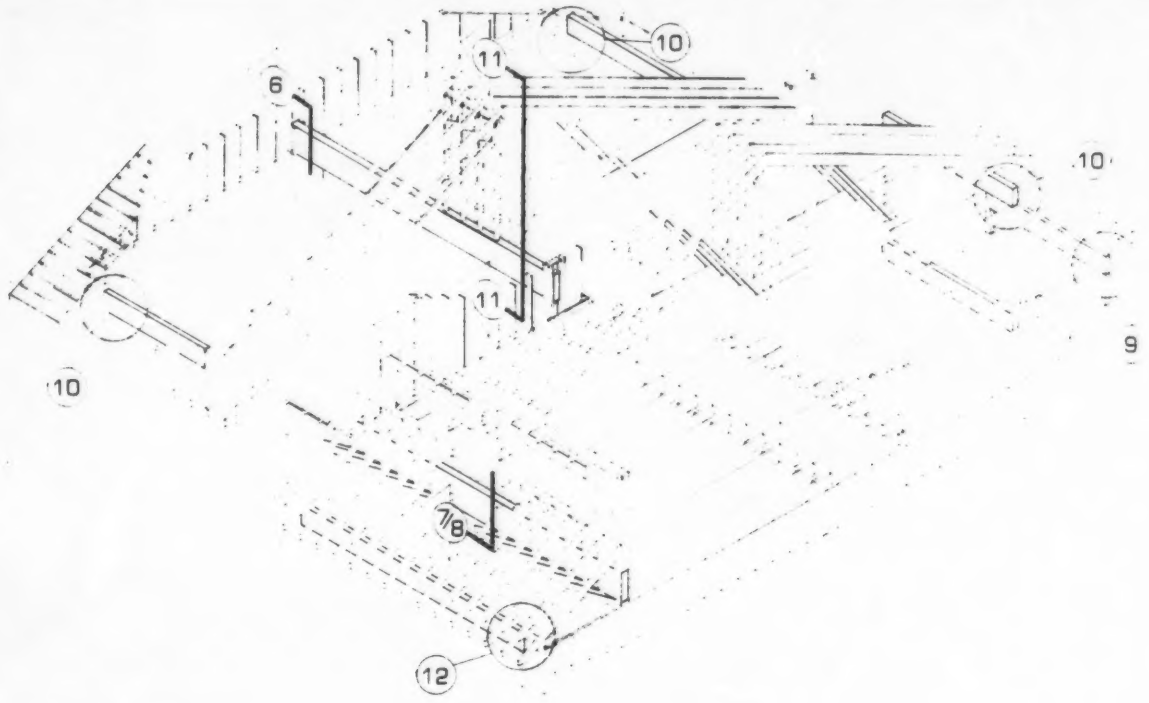








TYPICAL ROOF FRAMING



ROOF BEAMS

Westlam beams, headers, lintels and posts are, pound for pound, one of the most economical structural products available today. Westlam is effective as a structural member that can either be concealed or left exposed.

Westlam is available in two grades of surface finish - planed and sanded. As well as allowing for an "open beam" appearance, Westlam is supplied with one coat of wood sealer. This sealer is compatible with practically all paints (if a penetrating wood stain is used, the sealer must be removed). "Sanded" Finish is available on special request. "Planed" Finish is standard for stock items. See page 2 for specifications on surface finishes.

The large inventory maintained by Western Archrib, as well as inventory held by stocking dealers, makes possible prompt shipment. For delivery of non-stock items, please refer to your local Western Archrib representative or distributor.

DETAILS: ROOF FRAMING

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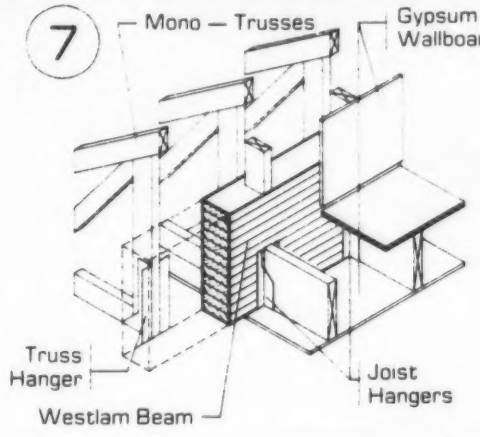

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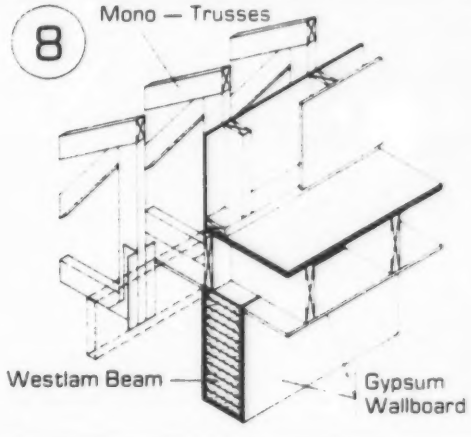

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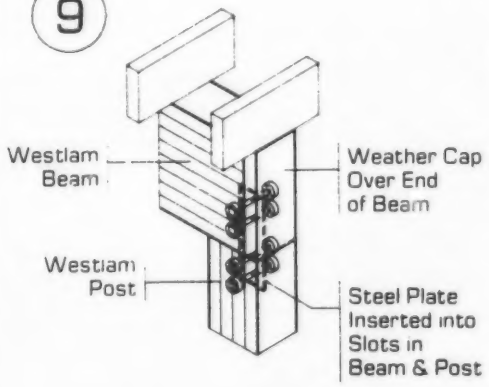

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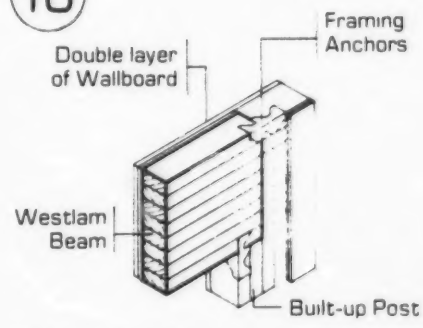
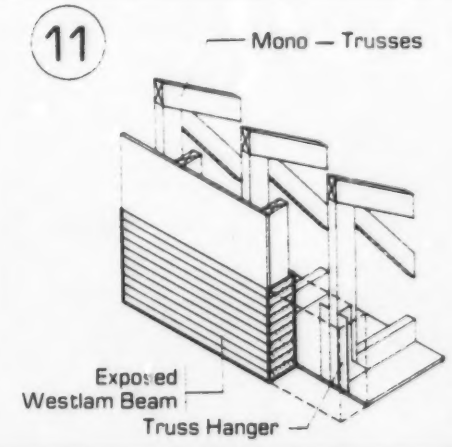
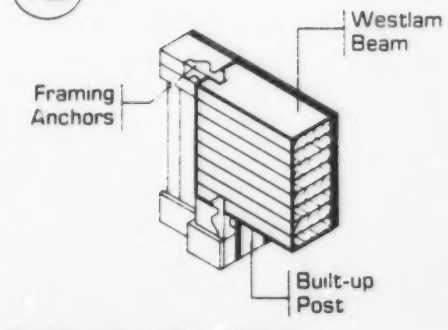


Parallel to wall installation where the beam is narrower than the wall

11



12



Parallel to wall installation where the beam is wider than the wall

UNIFORM LOAD CHART

TABLE 1 TOTAL LOAD (Deflection Limitation = L/180 under Total Load)

SPAN	TOTAL LOAD - POUNDS PER LINEAL FOOT									
	200	250	300	350	400	450	500	550	600	700
10'	3 × 6 5 × 6	3 × 7½ 5 × 6	3 × 7½ 5 × 6	3 × 7½ 5 × 6	3 × 7½ 5 × 7½	3 × 9 5 × 7½	3 × 9 5 × 7½	3 × 9 5 × 7½	3 × 10½ 5 × 7½	3 × 12 5 × 7½
12'	3 × 7½ 5 × 6	3 × 7½ 5 × 7½	3 × 9 5 × 7½	3 × 9 5 × 7½	3 × 9 5 × 7½	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 12 5 × 9	3 × 12 5 × 9
14'	3 × 9 5 × 7½	3 × 9 5 × 7½	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 12 5 × 9	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 15 5 × 10½
16'	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 15 5 × 12	3 × 15 5 × 12	3 × 16½ 5 × 12
18'	3 × 10½ 5 × 9	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 18 5 × 15
20'	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 18 5 × 15	3 × 19½ 5 × 15	3 × 21 5 × 15
22'	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 18 5 × 15	3 × 19½ 5 × 15	3 × 19½ 5 × 15	3 × 21 5 × 16½	5 × 18 6¾ × 15
24'	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 18 5 × 15	3 × 18 5 × 15	3 × 19½ 5 × 16½	3 × 21 5 × 16½	3 × 21 5 × 16½	5 × 18 6¾ × 15	5 × 19½ 6¾ × 16
26'	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 18 5 × 15	3 × 18 5 × 15	3 × 19½ 5 × 16½	3 × 21 5 × 16½	5 × 18 6¾ × 16½	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 16½	5 × 21 6¾ × 18
28'	3 × 16½ 5 × 13½	3 × 18 5 × 15	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 21 5 × 18	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 21 6¾ × 18	5 × 22½ 6¾ × 18
30'	3 × 18 5 × 15	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 21 5 × 18	5 × 19½ 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 19½ 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 19½	5 × 24 6¾ × 21
32'	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 21 5 × 18	5 × 19½ 6¾ × 18	5 × 19½ 6¾ × 18	5 × 21 6¾ × 19½	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 19½	5 × 24 6¾ × 21	5 × 25½ 6¾ × 22½
34'	3 × 19½ 5 × 16½	3 × 21 5 × 18	5 × 19½ 6¾ × 18	5 × 21 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21	5 × 25½ 6¾ × 22½	5 × 27 6¾ × 22½
36'	3 × 21 5 × 18	5 × 19½ 6¾ × 18	5 × 21 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21	5 × 25½ 6¾ × 22½	5 × 25½ 6¾ × 24	5 × 27 6¾ × 24	5 × 28½ 6¾ × 25½
38'	5 × 19½ 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21	5 × 24 6¾ × 22½	5 × 25½ 6¾ × 22½	5 × 27 6¾ × 24	5 × 28½ 6¾ × 24	5 × 30 6¾ × 25½
40'	5 × 19½ 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21	5 × 25½ 6¾ × 22½	5 × 25½ 6¾ × 24	5 × 27 6¾ × 24	5 × 28½ 6¾ × 25½	5 × 30 6¾ × 25½	5 × 31½ 6¾ × 27

TABLE 2 LIVE LOAD (Deflection Limitation = L/360 under Live Load)

SPAN	LIVE LOAD - POUNDS PER LINEAL FOOT									
	200	250	300	350	400	450	500	550	600	700
10'	3 × 7½ 5 × 6	3 × 9 5 × 7½	3 × 9 5 × 7½	3 × 9 5 × 7½	3 × 9 5 × 9	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 12 5 × 10½
12'	3 × 9 5 × 6	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12
14'	3 × 10½ 5 × 9	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 16½ 5 × 13½
16'	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15
18'	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 21 5 × 18
20'	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 15	3 × 18 5 × 15	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 21 5 × 18	3 × 21 5 × 18	3 × 21 5 × 18	5 × 19½ 6¾ × 18
22'	3 × 16½ 5 × 13½	3 × 18 5 × 15	3 × 18 5 × 16½	3 × 19½ 5 × 16½	3 × 21 5 × 18	3 × 21 5 × 18	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 19½ 6¾ × 18	5 × 21 6¾ × 19½
24'	3 × 18 5 × 15	3 × 19½ 5 × 16½	3 × 21 5 × 16½	3 × 21 5 × 18	5 × 19½ 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 21 6¾ × 18	5 × 21 6¾ × 19½	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 21
26'	3 × 19½ 5 × 16½	3 × 21 5 × 18	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 21 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21	5 × 24 6¾ × 22½
28'	3 × 21 5 × 18	5 × 19½ 6¾ × 18	5 × 19½ 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21	5 × 24 6¾ × 22½	5 × 25½ 6¾ × 22½	5 × 27 6¾ × 24
30'	5 × 19½ 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21	5 × 24 6¾ × 22½	5 × 25½ 6¾ × 22½	5 × 25½ 6¾ × 24	5 × 27 6¾ × 24	5 × 28½ 6¾ × 25½
32'	5 × 19½ 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21	5 × 25½ 6¾ × 22½	5 × 25½ 6¾ × 24	5 × 27 6¾ × 24	5 × 27 6¾ × 25½	5 × 28½ 6¾ × 25½	5 × 30 6¾ × 27
34'	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 22½	5 × 25½ 6¾ × 22½	5 × 27 6¾ × 24	5 × 27 6¾ × 25½	5 × 28½ 6¾ × 25½	5 × 30 6¾ × 27	5 × 31½ 6¾ × 27	5 × 31½ 6¾ × 28½
36'	5 × 22½ 6¾ × 21	5 × 24 6¾ × 22½	5 × 25½ 6¾ × 22½	5 × 27 6¾ × 24	5 × 28½ 6¾ × 25½	5 × 28½ 6¾ × 27	5 × 30 6¾ × 27	5 × 31½ 6¾ × 28½	5 × 31½ 6¾ × 28½	5 × 33 6¾ × 30
38'	5 × 24 6¾ × 21	5 × 25½ 6¾ × 22½	5 × 27 6¾ × 24	5 × 28½ 6¾ × 25½	5 × 30 6¾ × 27	5 × 31½ 6¾ × 28½	5 × 31½ 6¾ × 28½	5 × 33 6¾ × 30	5 × 34½ 6¾ × 30	5 × 36 6¾ × 30
40'	5 × 25½ 6¾ × 22½	5 × 27 6¾ × 24	5 × 28½ 6¾ × 25½	5 × 30 6¾ × 27	5 × 31½ 6¾ × 28½	5 × 31½ 6¾ × 28½	5 × 33 6¾ × 30	5 × 34½ 6¾ × 31½	5 × 36 6¾ × 31½	6¾ × 33 8½ × 31½

TABLE USE:

(1) First use Table 1 to determine two alternative beam sizes based on a Total Load deflection limit of L/180. If no further deflection limit is required choose one of these two sizes. Of the two sizes listed, the upper size is the most economical.

(2) If a Live Load deflection limit of L/360 is required proceed as follows:

- Enter Table 2 at the appropriate Live Load and span to determine two alternatives sizes.
- By comparing only beams of common width, compare the sizes selected from Table 2 to those selected from Table 1 and use the size with the greater depth.

NOTES:

Table 2 must always be used in conjunction with Table 1.

If either the actual span or the loading falls between those listed on the tables, always use the next highest.

ROOF BEAMS

TOTAL LOAD - POUNDS PER LINEAL FOOT										
800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800
3 x 10 5 1/2 x 9	3 x 12 5 1/2 x 9	3 x 12 5 1/2 x 10 1/2	3 x 13 1/2 5 1/2 x 10 1/2	3 x 13 1/2 5 1/2 x 10 1/2	3 x 13 1/2 5 1/2 x 10 1/2	3 x 15 5 1/2 x 12	3 x 15 5 1/2 x 12	3 x 15 5 1/2 x 12	3 x 16 1/2 5 1/2 x 12	3 x 16 1/2 5 1/2 x 13 1/2
3 x 13 1/2 5 1/2 x 12	3 x 13 1/2 5 1/2 x 12	3 x 15 5 1/2 x 12	3 x 15 5 1/2 x 12	3 x 16 1/2 5 1/2 x 12	3 x 16 1/2 5 1/2 x 13 1/2	3 x 18 5 1/2 x 13 1/2	3 x 18 5 1/2 x 13 1/2	3 x 18 5 1/2 x 15	3 x 19 1/2 5 1/2 x 15	3 x 19 1/2 5 1/2 x 15
3 x 15 5 1/2 x 12	3 x 15 5 1/2 x 12	3 x 16 1/2 5 1/2 x 13 1/2	3 x 18 5 1/2 x 13 1/2	3 x 18 5 1/2 x 15	3 x 19 1/2 5 1/2 x 15	3 x 19 1/2 5 1/2 x 15	3 x 21 5 1/2 x 16 1/2	3 x 21 5 1/2 x 16 1/2	5 x 16 1/2 6 3/4 x 15	5 x 18 6 3/4 x 15
3 x 18 5 1/2 x 13 1/2	3 x 18 5 1/2 x 15	3 x 19 1/2 5 1/2 x 15	3 x 21 5 1/2 x 16 1/2	3 x 21 5 1/2 x 16 1/2	5 x 18 6 3/4 x 15	5 x 18 6 3/4 x 15	5 x 18 6 3/4 x 16 1/2	5 x 19 1/2 6 3/4 x 16 1/2	5 x 19 1/2 6 3/4 x 16 1/2	5 x 21 6 3/4 x 18
3 x 19 1/2 5 1/2 x 15	3 x 21 5 1/2 x 16 1/2	5 x 16 1/2 6 3/4 x 15	5 x 18 6 3/4 x 15	5 x 18 6 3/4 x 16 1/2	5 x 19 1/2 6 3/4 x 16 1/2	5 x 19 1/2 6 3/4 x 18	5 x 21 6 3/4 x 18	5 x 21 6 3/4 x 18	5 x 22 1/2 6 3/4 x 19 1/2	5 x 22 1/2 6 3/4 x 19 1/2
5 x 15 6 3/4 x 13 1/2	5 x 18 6 3/4 x 15	5 x 19 1/2 6 3/4 x 16 1/2	5 x 19 1/2 6 3/4 x 16 1/2	5 x 21 6 3/4 x 18	5 x 21 6 3/4 x 18	5 x 22 1/2 6 3/4 x 19 1/2	5 x 22 1/2 6 3/4 x 19 1/2	5 x 24 6 3/4 x 21	5 x 24 6 3/4 x 21	5 x 25 1/2 6 3/4 x 22 1/2
5 x 18 6 3/4 x 16 1/2	5 x 19 1/2 6 3/4 x 16 1/2	5 x 21 6 3/4 x 18	5 x 22 1/2 6 3/4 x 18	5 x 22 1/2 6 3/4 x 19 1/2	5 x 24 6 3/4 x 21	5 x 24 6 3/4 x 21	5 x 25 1/2 6 3/4 x 22 1/2	5 x 27 6 3/4 x 22 1/2	5 x 27 6 3/4 x 24	5 x 28 1/2 6 3/4 x 24
5 x 21 6 3/4 x 18	5 x 21 6 3/4 x 18	5 x 22 1/2 6 3/4 x 19 1/2	5 x 24 6 3/4 x 21	5 x 25 1/2 6 3/4 x 22 1/2	5 x 25 1/2 6 3/4 x 22 1/2	5 x 27 6 3/4 x 22 1/2	5 x 28 1/2 6 3/4 x 24	5 x 28 1/2 6 3/4 x 25 1/2	5 x 30 6 3/4 x 25 1/2	5 x 30 6 3/4 x 27
5 x 22 1/2 6 3/4 x 19 1/2	5 x 24 6 3/4 x 19 1/2	5 x 24 6 3/4 x 21	5 x 25 1/2 6 3/4 x 22 1/2	5 x 27 6 3/4 x 22 1/2	5 x 28 1/2 6 3/4 x 24	5 x 30 6 3/4 x 25 1/2	5 x 30 6 3/4 x 25 1/2	5 x 31 1/2 6 3/4 x 27	5 x 33 6 3/4 x 28 1/2	5 x 33 6 3/4 x 28 1/2
5 x 24 6 3/4 x 21	5 x 25 1/2 6 3/4 x 22 1/2	5 x 27 6 3/4 x 22 1/2	5 x 28 1/2 6 3/4 x 24	5 x 30 6 3/4 x 25 1/2	5 x 30 6 3/4 x 25 1/2	5 x 31 1/2 6 3/4 x 27	5 x 33 6 3/4 x 28 1/2	5 x 34 6 3/4 x 30	5 x 34 6 3/4 x 30	5 x 36 6 3/4 x 31 1/2
5 x 25 1/2 6 3/4 x 22 1/2	5 x 27 6 3/4 x 22 1/2	5 x 28 1/2 6 3/4 x 24	5 x 30 6 3/4 x 25 1/2	5 x 31 1/2 6 3/4 x 27	5 x 33 6 3/4 x 28 1/2	5 x 34 1/2 6 3/4 x 28 1/2	5 x 34 1/2 6 3/4 x 30	5 x 36 6 3/4 x 31 1/2	6 3/4 x 33 8 1/2 x 28 1/2	6 3/4 x 33 8 1/2 x 30
5 x 27 6 3/4 x 24	5 x 28 1/2 6 3/4 x 25 1/2	5 x 30 6 3/4 x 25 1/2	5 x 31 1/2 6 3/4 x 27	5 x 33 6 3/4 x 28 1/2	5 x 34 1/2 6 3/4 x 30	5 x 36 6 3/4 x 31 1/2	6 3/4 x 31 1/2 8 1/2 x 28 1/2	6 3/4 x 33 8 1/2 x 30	6 3/4 x 34 1/2 8 1/2 x 30	6 3/4 x 36 8 1/2 x 31 1/2
5 x 28 1/2 6 3/4 x 25 1/2	5 x 31 1/2 6 3/4 x 27	5 x 33 6 3/4 x 28 1/2	5 x 34 6 3/4 x 30	5 x 36 6 3/4 x 31 1/2	6 3/4 x 31 1/2 8 1/2 x 28 1/2	6 3/4 x 33 8 1/2 x 30	6 3/4 x 34 1/2 8 1/2 x 30	6 3/4 x 36 8 1/2 x 31 1/2	6 3/4 x 36 8 1/2 x 33	6 3/4 x 37 1/2 8 1/2 x 33
5 x 30 6 3/4 x 27	5 x 33 6 3/4 x 28 1/2	5 x 34 1/2 6 3/4 x 30	5 x 36 6 3/4 x 31 1/2	6 3/4 x 33 8 1/2 x 28 1/2	6 3/4 x 34 1/2 8 1/2 x 30	6 3/4 x 34 1/2 8 1/2 x 31 1/2	6 3/4 x 36 8 1/2 x 33	6 3/4 x 37 1/2 8 1/2 x 33	6 3/4 x 39 8 1/2 x 34 1/2	6 3/4 x 40 1/2 8 1/2 x 36
5 x 33 6 3/4 x 28 1/2	5 x 34 1/2 6 3/4 x 30	5 x 36 6 3/4 x 31 1/2	6 3/4 x 33 8 1/2 x 28 1/2	6 3/4 x 34 1/2 8 1/2 x 30	6 3/4 x 36 8 1/2 x 31 1/2	6 3/4 x 37 1/2 8 1/2 x 33	6 3/4 x 39 8 1/2 x 34 1/2	6 3/4 x 40 1/2 8 1/2 x 36	6 3/4 x 40 1/2 8 1/2 x 36	6 3/4 x 42 8 1/2 x 37 1/2
5 x 34 1/2 6 3/4 x 30	5 x 36 6 3/4 x 31 1/2	6 3/4 x 33 8 1/2 x 28 1/2	6 3/4 x 34 1/2 8 1/2 x 30	6 3/4 x 36 8 1/2 x 31 1/2	6 3/4 x 37 1/2 8 1/2 x 33	6 3/4 x 39 8 1/2 x 34 1/2	6 3/4 x 40 1/2 8 1/2 x 36	6 3/4 x 42 8 1/2 x 37 1/2	6 3/4 x 43 1/2 8 1/2 x 39	6 3/4 x 45 8 1/2 x 39

LIVE LOAD - POUNDS PER LINEAL FOOT										
800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800
3 x 12 5 1/2 x 10 1/2	3 x 13 1/2 5 1/2 x 12	3 x 13 1/2 5 1/2 x 12	3 x 13 1/2 5 1/2 x 12	3 x 13 1/2 5 1/2 x 12	3 x 13 1/2 5 1/2 x 12	3 x 15 5 1/2 x 12	3 x 15 5 1/2 x 12	3 x 16 1/2 5 1/2 x 13 1/2	3 x 16 1/2 5 1/2 x 13 1/2	3 x 16 1/2 5 1/2 x 13 1/2
3 x 15 5 1/2 x 12	3 x 15 5 1/2 x 12	3 x 15 5 1/2 x 13 1/2	3 x 16 1/2 5 1/2 x 13 1/2	3 x 16 1/2 5 1/2 x 13 1/2	3 x 16 1/2 5 1/2 x 13 1/2	3 x 16 1/2 5 1/2 x 15	3 x 18 5 1/2 x 15	3 x 18 5 1/2 x 15	3 x 18 5 1/2 x 15	3 x 18 5 1/2 x 15
3 x 16 1/2 5 1/2 x 13 1/2	3 x 18 5 1/2 x 13 1/2	3 x 18 5 1/2 x 15	3 x 18 5 1/2 x 15	3 x 19 1/2 5 1/2 x 16 1/2	3 x 19 1/2 5 1/2 x 16 1/2	3 x 19 1/2 5 1/2 x 16 1/2	3 x 21 5 1/2 x 16 1/2	3 x 21 5 1/2 x 16 1/2	3 x 21 5 1/2 x 16 1/2	3 x 21 5 1/2 x 16 1/2
3 x 19 1/2 5 1/2 x 16 1/2	3 x 19 1/2 5 1/2 x 16 1/2	3 x 21 5 1/2 x 16 1/2	3 x 21 5 1/2 x 18	3 x 21 5 1/2 x 18	5 x 19 1/2 6 3/4 x 16 1/2	5 x 19 1/2 6 3/4 x 18	5 x 19 1/2 6 3/4 x 18	5 x 19 1/2 6 3/4 x 18	5 x 21 6 3/4 x 18	5 x 21 6 3/4 x 19 1/2
3 x 21 5 1/2 x 18	5 x 19 1/2 6 3/4 x 16 1/2	5 x 19 1/2 6 3/4 x 18	5 x 21 6 3/4 x 18	5 x 21 6 3/4 x 19 1/2	5 x 21 6 3/4 x 19 1/2	5 x 21 6 3/4 x 19 1/2	5 x 22 1/2 6 3/4 x 19 1/2	5 x 22 1/2 6 3/4 x 21	5 x 22 1/2 6 3/4 x 21	5 x 24 6 3/4 x 21
5 x 19 1/2 6 3/4 x 16 1/2	5 x 21 6 3/4 x 19 1/2	5 x 21 6 3/4 x 19 1/2	5 x 22 1/2 6 3/4 x 19 1/2	5 x 22 1/2 6 3/4 x 21	5 x 22 1/2 6 3/4 x 21	5 x 24 6 3/4 x 21	5 x 24 6 3/4 x 22 1/2	5 x 25 1/2 6 3/4 x 22 1/2	5 x 25 1/2 6 3/4 x 22 1/2	5 x 25 1/2 6 3/4 x 24
5 x 21 6 3/4 x 19 1/2	5 x 22 1/2 6 3/4 x 21	5 x 24 6 3/4 x 21	5 x 24 6 3/4 x 22 1/2	5 x 25 1/2 6 3/4 x 22 1/2	5 x 25 1/2 6 3/4 x 22 1/2	5 x 25 1/2 6 3/4 x 24	5 x 27 6 3/4 x 24	5 x 27 6 3/4 x 24	5 x 27 6 3/4 x 25 1/2	5 x 28 1/2 6 3/4 x 25 1/2
5 x 24 6 3/4 x 21	5 x 24 6 3/4 x 22 1/2	5 x 25 1/2 6 3/4 x 22 1/2	5 x 25 1/2 6 3/4 x 24	5 x 27 6 3/4 x 24	5 x 27 6 3/4 x 25 1/2	5 x 28 1/2 6 3/4 x 25 1/2	5 x 28 1/2 6 3/4 x 25 1/2	5 x 30 6 3/4 x 27	5 x 30 6 3/4 x 27	5 x 30 6 3/4 x 28 1/2
5 x 25 1/2 6 3/4 x 22 1/2	5 x 27 6 3/4 x 24	5 x 27 6 3/4 x 25 1/2	5 x 28 1/2 6 3/4 x 25 1/2	5 x 28 1/2 6 3/4 x 27	5 x 30 6 3/4 x 27	5 x 30 6 3/4 x 28 1/2	5 x 31 1/2 6 3/4 x 28 1/2	5 x 31 1/2 6 3/4 x 28 1/2	5 x 33 6 3/4 x 30	5 x 33 6 3/4 x 30
5 x 27 6 3/4 x 25 1/2	5 x 28 1/2 6 3/4 x 25 1/2	5 x 28 1/2 6 3/4 x 27	5 x 30 6 3/4 x 27	5 x 31 1/2 6 3/4 x 28 1/2	5 x 31 1/2 6 3/4 x 28 1/2	5 x 33 6 3/4 x 30	5 x 33 6 3/4 x 30	5 x 34 1/2 6 3/4 x 31 1/2	5 x 34 1/2 6 3/4 x 31 1/2	5 x 36 6 3/4 x 33
5 x 30 6 3/4 x 27	5 x 30 6 3/4 x 27	5 x 31 1/2 6 3/4 x 28 1/2	5 x 33 6 3/4 x 30	5 x 33 6 3/4 x 30	5 x 34 1/2 6 3/4 x 31 1/2	5 x 34 1/2 6 3/4 x 31 1/2	5 x 36 6 3/4 x 33	6 3/4 x 33 8 1/2 x 30	6 3/4 x 34 1/2 8 1/2 x 31 1/2	6 3/4 x 34 1/2 8 1/2 x 31 1/2
5 x 31 1/2 6 3/4 x 28 1/2	5 x 33 6 3/4 x 30	5 x 33 6 3/4 x 30	5 x 34 1/2 6 3/4 x 31 1/2	5 x 36 6 3/4 x 33	5 x 36 6 3/4 x 33	6 3/4 x 34 1/2 8 1/2 x 31 1/2	6 3/4 x 34 1/2 8 1/2 x 33	6 3/4 x 36 8 1/2 x 33	6 3/4 x 36 8 1/2 x 33	6 3/4 x 37 1/2 8 1/2 x 34 1/2
5 x 33 6 3/4 x 30	5 x 34 1/2 6 3/4 x 31 1/2	5 x 36 6 3/4 x 33	6 3/4 x 33 8 1/2 x 31 1/2	6 3/4 x 34 1/2 8 1/2 x 31 1/2	6 3/4 x 34 1/2 8 1/2 x 33	6 3/4 x 36 8 1/2 x 33	6 3/4 x 37 1/2 8 1/2 x 34 1/2	6 3/4 x 37 1/2 8 1/2 x 34 1/2	6 3/4 x 39 8 1/2 x 36	6 3/4 x 39 8 1/2 x 36
5 x 34 1/2 6 3/4 x 31 1/2	5 x 36 6 3/4 x 33	6 3/4 x 34 1/2 8 1/2 x 33	6 3/4 x 34 1/2 8 1/2 x 33	6 3/4 x 36 8 1/2 x 33	6 3/4 x 37 1/2 8 1/2 x 34 1/2	6 3/4 x 37 1/2 8 1/2 x 36	6 3/4 x 39 8 1/2 x 36	6 3/4 x 40 1/2 8 1/2 x 37 1/2	6 3/4 x 40 1/2 8 1/2 x 39	6 3/4 x 42 8 1/2 x 40 1/2
6 3/4 x 33 8 1/2 x 31 1/2	6 3/4 x 34 1/2 8 1/2 x 33	6 3/4 x 36 8 1/2 x 33	6 3/4 x 37 1/2 8 1/2 x 34 1/2	6 3/4 x 37 1/2 8 1/2 x 36	6 3/4 x 39 8 1/2 x 36	6 3/4 x 40 1/2 8 1/2 x 37 1/2	6 3/4 x 40 1/2 8 1/2 x 39	6 3/4 x 42 8 1/2 x 39	6 3/4 x 43 1/2 8 1/2 x 40 1/2	6 3/4 x 43 1/2 8 1/2 x 40 1/2
6 3/4 x 34 1/2 8 1/2 x 33	6 3/4 x 36 8 1/2 x 34 1/2	6 3/4 x 37 1/2 8 1/2 x 34 1/2	6 3/4 x 39 8 1/2 x 36	6 3/4 x 40 1/2 8 1/2 x 37 1/2	6 3/4 x 42 8 1/2 x 39	6 3/4 x 42 8 1/2 x 39	6 3/4 x 43 1/2 8 1/2 x 40 1/2	6 3/4 x 45 8 1/2 x 42	6 3/4 x 46 1/2 8 1/2 x 42	6 3/4 x 46 1/2 8 1/2 x 42

DESIGN SPECIFICATIONS:

Stress Grade:	Westlam E
Service Grade:	Exterior
Deflection Limitation:	As noted on tables
Modulus of Elasticity (E):	1,500,000 psi
Service Condition:	Dry
Lamination Size:	1 1/2 inches

If all these conditions do not apply, do not use the tables.

UNIFORM LOAD CHART - FLOOR BEAMS

TABLE 1 TOTAL LOAD (Deflection Limitation = L/240 under Total Load)

SPAN	TOTAL LOAD - POUNDS PER LINEAL FOOT									
	400	500	600	700	800	1000	1200	1400	1600	1800
10'	3 × 9 5 × 9	3 × 9 5 × 9	3 × 10½ 5 × 9	3 × 12 5 × 9	3 × 12 5 × 9	3 × 13½ 5 × 10½	3 × 15 5 × 10½	5 × 12 6¾ × 10½	5 × 13½ 6¾ × 12	5 × 13½ 6¾ × 12
12'	3 × 10½ 5 × 9	3 × 12 5 × 9	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 15 5 × 10½	3 × 16½ 5 × 12	5 × 13½ 6¾ × 12	5 × 15 6¾ × 13½	5 × 16½ 6¾ × 15	5 × 18 6¾ × 15
14'	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 15 5 × 12	3 × 15 5 × 12	5 × 13½ 6¾ × 12	5 × 13½ 6¾ × 12	5 × 15 6¾ × 13½	5 × 16½ 6¾ × 15	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 16½
16'	3 × 13½ 5 × 10½	3 × 15 5 × 12	5 × 13½ 6¾ × 12	5 × 13½ 6¾ × 12	5 × 15 6¾ × 13½	5 × 16½ 6¾ × 13½	5 × 18 6¾ × 15	5 × 19½ 6¾ × 16½	5 × 21 6¾ × 18	5 × 22½ 6¾ × 18
18'	3 × 15 5 × 12	5 × 13½ 6¾ × 12	5 × 15 6¾ × 13½	5 × 15 6¾ × 13½	5 × 16½ 6¾ × 15	5 × 18 6¾ × 15	5 × 19½ 6¾ × 16½	5 × 21 6¾ × 18	5 × 22½ 6¾ × 19½	5 × 24 6¾ × 19½
20'	5 × 13½ 6¾ × 12	5 × 15 6¾ × 13½	5 × 16½ 6¾ × 15	5 × 16½ 6¾ × 15	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 22½ 6¾ × 19½	5 × 24 6¾ × 21	6¾ × 22½ 8½ × 19½	6¾ × 24 8½ × 21
22'	5 × 15 6¾ × 13½	5 × 16½ 6¾ × 15	5 × 18 6¾ × 16½	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 22½ 6¾ × 19½	5 × 24 6¾ × 21	6¾ × 22½ 8½ × 21	6¾ × 24 8½ × 22½	6¾ × 26 8½ × 22½
24'	5 × 16½ 6¾ × 15	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 16½	5 × 21 6¾ × 18	5 × 22½ 6¾ × 19½	5 × 24 6¾ × 21	6¾ × 22½ 8½ × 21	6¾ × 24 8½ × 22½	6¾ × 26 8½ × 24	6¾ × 27 8½ × 24
26'	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 21 6¾ × 18	5 × 22½ 6¾ × 19½	5 × 24 6¾ × 21	6¾ × 22½ 8½ × 21	6¾ × 24 8½ × 22½	6¾ × 26 8½ × 24	6¾ × 27 8½ × 24	6¾ × 28 8½ × 24
28'	5 × 19½ 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 19½	5 × 24 6¾ × 21	5 × 25½ 6¾ × 22½	6¾ × 24 8½ × 22½	6¾ × 27 8½ × 24	6¾ × 28½ 8½ × 25½	6¾ × 30 8½ × 27	6¾ × 31½ 8½ × 27
30'	5 × 21 6¾ × 18	5 × 22½ 6¾ × 19½	5 × 24 6¾ × 21	5 × 25½ 6¾ × 22½	6¾ × 24 8½ × 21	6¾ × 27 8½ × 24	6¾ × 28½ 8½ × 25½	6¾ × 30 8½ × 27	6¾ × 31½ 8½ × 28½	6¾ × 33 8½ × 30

TABLE 2 LIVE LOAD (Deflection Limitation = L/360 under Live Load)

SPAN	LIVE LOAD - POUNDS PER LINEAL FOOT									
	400	500	600	700	800	1000	1200	1400	1600	1800
10'	3 × 9 5 × 9	3 × 10½ 5 × 9	3 × 10½ 5 × 9	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 15 5 × 12	5 × 12 6¾ × 10½	5 × 13½ 6¾ × 12	5 × 13½ 6¾ × 12
12'	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	5 × 13½ 6¾ × 12	5 × 15 6¾ × 13½	5 × 15 6¾ × 13½	5 × 16½ 6¾ × 15
14'	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 13½ 6¾ × 12	5 × 13½ 6¾ × 13½	5 × 15 6¾ × 13½	5 × 16½ 6¾ × 15	5 × 16½ 6¾ × 15	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 16½
16'	3 × 15 5 × 13½	5 × 13½ 6¾ × 12	5 × 15 6¾ × 13½	5 × 15 6¾ × 13½	5 × 16½ 6¾ × 15	5 × 16½ 6¾ × 15	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 21 6¾ × 18	5 × 22½ 6¾ × 19½
18'	5 × 15 6¾ × 13½	5 × 15 6¾ × 13½	5 × 16½ 6¾ × 15	5 × 16½ 6¾ × 15	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 21 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21
20'	5 × 16½ 6¾ × 15	5 × 16½ 6¾ × 15	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21	6¾ × 22½ 8½ × 21	6¾ × 24 8½ × 21
22'	5 × 18 6¾ × 16½	5 × 18 6¾ × 16½	5 × 19½ 6¾ × 18	5 × 21 6¾ × 19½	5 × 21 6¾ × 19½	5 × 24 6¾ × 21	5 × 24 6¾ × 22½	6¾ × 24 8½ × 22½	6¾ × 24 8½ × 22½	6¾ × 25½ 8½ × 24
24'	5 × 19½ 6¾ × 16½	5 × 21 6¾ × 18	5 × 21 6¾ × 19½	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21	5 × 25½ 6¾ × 22½	6¾ × 24 8½ × 22½	6¾ × 25½ 8½ × 24	6¾ × 27 8½ × 25½	6¾ × 28 8½ × 25½
26'	5 × 21 6¾ × 18	5 × 22½ 6¾ × 21	5 × 24 6¾ × 21	5 × 24 6¾ × 22½	6 × 25½ 6¾ × 22½	6¾ × 25½ 8½ × 22½	6¾ × 27 8½ × 24	6¾ × 28½ 8½ × 25½	6¾ × 28½ 8½ × 27	6¾ × 30 8½ × 28½
28'	5 × 22½ 6¾ × 19½	5 × 24 6¾ × 21	5 × 25½ 6¾ × 22½	6¾ × 24 8½ × 22½	6¾ × 25½ 8½ × 22½	6¾ × 27 8½ × 25½	6¾ × 28½ 8½ × 27	6¾ × 30 8½ × 27	6¾ × 31½ 8½ × 28½	6¾ × 33 8½ × 30
30'	5 × 24 6¾ × 21	5 × 25½ 6¾ × 22½	6¾ × 24 8½ × 22½	6¾ × 25½ 8½ × 24	6¾ × 27 8½ × 24	6¾ × 28½ 8½ × 27	6¾ × 30 8½ × 28½	6¾ × 31½ 8½ × 30	6¾ × 33 8½ × 31½	6¾ × 36 8½ × 31½

TABLE USE:

(1) First use Table 1 to determine two alternative beam sizes based on a Total Load deflection limit of L/240. If no further deflection limit is required choose one of these two sizes. Of the two sizes listed, the upper size is the most economical.

(2) If a Live Load deflection limit of L/360 is required proceed as follows:

- Enter Table 2 at the appropriate Live Load and span to determine two alternative sizes.
- By comparing only beams of common width, compare the sizes selected from Table 2 to those selected from Table 1 and use the size with the greater depth.

DESIGN SPECIFICATIONS:

Stress Grade:	Westlam E
Service Grade:	Exterior
Deflection Limitation:	As noted on tables
Modulus of Elasticity (E):	1,500,000 psi
Service Condition:	Dry
Lamination Size:	1½ inches

If all these conditions do not apply, do not use the tables.

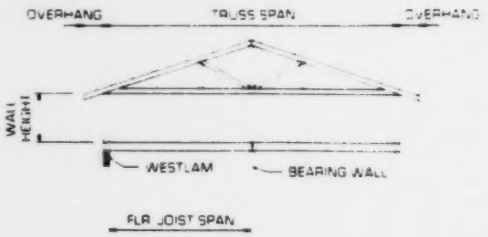
NOTES:

Table 2 must always be used in conjunction with Table 1.

If either the actual span or the loading falls between those listed on the tables, always use the next highest.

SIZING PROCEDURE - SPECIAL CASES

FOR TWO STOREY APPLICATIONS



INSTRUCTIONS

1) Calculate the ROOF LOADING (lbs./sq. ft.) by multiplying one half (1/2) the Truss Span (ft.), plus the length of the overhang (ft.), times the Total Load (lbs./sq. ft.). The Total Load equals the factored ground snow load (lbs./sq. ft.) plus the roof Dead Load (lbs./sq. ft.).

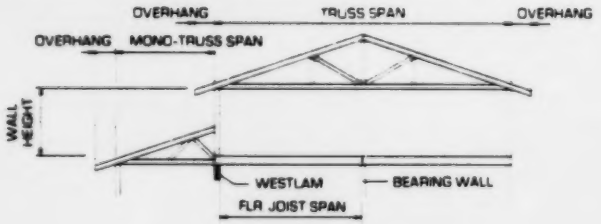
2) Calculate the floor loading (lbs./sq. ft.) by multiplying one half (1/2) the Floor Joist Span (ft.), times the Total Load (lbs./sq. ft.). The Total Load equals the required Live Load (lbs./sq. ft.) - from building code - plus the floor Dead Load (lbs./sq. ft.).

3) Calculate the WALL LOADING (lbs./ft. 60 to 80 lbs./ft. in most cases) by multiplying the wall Dead Load (lbs./sq. ft.), times the wall height (ft.).

4) Add the ROOF LOADING, WALL LOADING, and FLOOR LOADING together to obtain the TOTAL LOADING (lbs./ft.) to be carried by the beam.

5) Refer to Westlam Uniform Load Span Tables and look up the required beam size. When reading the Tables if either the actual span or the loading falls between those listed on the Tables always use the next highest.

FOR BEAMS SUPPORTING A SECOND FLOOR, MAIN ROOF, AND FRONT ATTACHED GARAGE ROOF



INSTRUCTIONS

1) Calculate the ROOF LOADING - from the main roof - (lbs./ft.) by multiplying one half (1/2) the Truss Span (ft.), plus the length of the overhand (ft.), times the Total Load (lbs./sq. ft.). The Total Load equals the factored ground Snow Load (lbs./sq. ft.), plus the Roof Dead Load (lbs./sq. ft.).

2) Calculate the ROOF LOADING - from the garage roof - (lbs./ft.) the dead load portion may be calculated by multiplying one half (1/2) the Mono-Truss span (ft.), times the Dead Load of the garage roof. Add to this the appropriate Live Loading, (lbs./ft.). (It is left to the designer's discretion whether or not to consider the possibility of drifting or sliding snow when calculating the Live Load.)

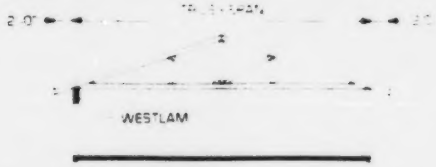
3) Calculate the FLOOR LOADING (lbs./ft.) by multiplying one half (1/2) the Floor Joist Span (ft.), times the Total Load (lbs./sq. ft.). The Total Load equals the required Live Load (lbs./sq. ft.) - from building code - plus the floor Dead Load (lbs./sq. ft.).

4) Calculate the WALL LOADING (lbs./ft. - 60 to 80 lbs./ft. in most cases) by multiplying the wall Dead Load (lbs./sq. ft.), times the wall height (ft.).

5) Add the ROOF LOADINGS (2), the WALL LOADING, and the FLOOR LOADING together to obtain the TOTAL LOADING (lbs./ft.) to be carried by the beam.

6) Refer to Westlam Uniform Load Span Tables and look up the required beam size. When reading the Tables if either the actual span or the loading falls between those listed on the tables, always use the next highest.

HEADER SPAN TABLE



ROOF LIVE LOAD = 20 lbs. / sq. ft.

HEADER SPAN	TRUSS SPAN w/2'-0" Soffit assumed										
	20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
8'	3 × 7	3 × 7	3 × 7	3 × 7	3 × 7	3 × 7	3 × 7	3 × 7	3 × 7	3 × 9	3 × 9
9'	3 × 7	3 × 7	3 × 7	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9
10'	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 10½	3 × 10½	3 × 10½	3 × 10½
11'	3 × 9	3 × 9	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 12
12'	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 12 5 × 10	3 × 12 5 × 10	3 × 12 5 × 10	3 × 12 5 × 10	3 × 12 5 × 10
13'	3 × 10½	3 × 10½	3 × 12 5 × 9	3 × 12 5 × 10	3 × 12 5 × 10	3 × 12 5 × 10	3 × 12 5 × 10	3 × 12 5 × 10	3 × 12 5 × 10	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½
14'	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½
16'	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½
18'	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 15 5 × 13½	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15
20'	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15	3 × 18 5 × 16½	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½

ROOF LIVE LOAD = 30 lbs / sq. ft.

HEADER SPAN	TRUSS SPAN w/2'-0" Soffit assumed										
	20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
8'	3 × 7	3 × 7	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9
9'	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½
10'	3 × 9	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 12 5 × 9	3 × 12 5 × 10½	3 × 12 5 × 10½
11'	3 × 10	3 × 10½	3 × 10½	3 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½
12'	3 × 12 5 × 9	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 13½ 5 × 12
13'	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12
14'	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½
16'	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 18 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15	3 × 19½ 5 × 15
18'	3 × 16½ 5 × 13½	3 × 16½ 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 21 5 × 16½	3 × 21 5 × 16½
20'	3 × 18 5 × 15	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 21 5 × 18	3 × 21 5 × 18	5 × 18	3 × 18	5 × 19½	5 × 19½

ROOF LIVE LOAD = 40 lbs./sq. ft.

HEADER SPAN	TRUSS SPAN w/2'-0" Soffit assumed										
	20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
8'	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 10½	3 × 10½	3 × 10½	3 × 10½
9'	3 × 9	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 12 5 × 9	3 × 12 5 × 10½	3 × 12 5 × 10½
10'	3 × 10½	3 × 10½	3 × 10½	3 × 12 5 × 9	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½
11'	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 15 5 × 12
12'	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 16½ 5 × 13½
13'	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½
14'	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 15 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 16½ 5 × 13½	3 × 18 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15
16'	3 × 16½ 5 × 13½	3 × 16½ 5 × 15	3 × 16½ 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15	3 × 18 5 × 15	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 21 5 × 16½	3 × 21 5 × 16½
18'	3 × 18 5 × 15	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 19½ 5 × 16½	3 × 21 5 × 18	3 × 21 5 × 18	5 × 18	5 × 18	5 × 18	5 × 19½
20'	3 × 21 5 × 16½	3 × 21 5 × 18	3 × 21 5 × 18	5 × 18	5 × 19½	5 × 19½	5 × 19½	5 × 19½	5 × 21	5 × 21	5 × 21

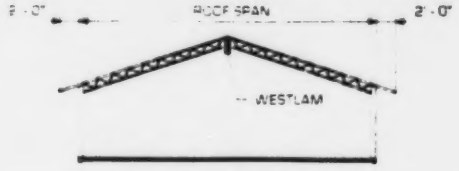
NOTES:

- These tables are for SIMPLE SPAN beams carrying ROOF LOAD only
- All tables are based on 10 lbs. / sq. ft. dead load
- Refer to Westlam Uniform Load span tables for loads in excess of those listed

DESIGN SPECIFICATIONS:

Stress Grade:	Westlam E
Service Grade:	Exterior
Deflection Limitation:	L/360 under Live Load
Modulus of Elasticity (E):	1,500,000 psi
Service Condition:	Dry
Lamination Size:	1½ inches

RIDGE BEAM SPAN TABLE



ROOF LIVE LOAD = 20 lbs./sq. ft.

BEAM SPAN	ROOF SPAN 20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
8'	3 × 6	3 × 7½	3 × 7½	3 × 7½	3 × 7½	3 × 7½	3 × 7½	3 × 7½	3 × 7½	3 × 7½	3 × 7½
10'	3 × 7½	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 10½	3 × 10½
12'	3 × 9	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 12 / 5 × 9	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½
14'	3 × 10½	3 × 12 / 5 × 9	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 13½ / 5 × 10½	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12
16'	3 × 12 / 5 × 10½	3 × 13½ / 5 × 10½	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 13½	3 × 15 / 5 × 13½	3 × 15 / 5 × 13½
18'	3 × 13½ / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 13½	3 × 15 / 5 × 13½	3 × 15 / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 15	3 × 18 / 5 × 15
20'	3 × 15 / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 15	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½
22'	3 × 16½ / 5 × 15	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 18 / 5 × 16½	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 21 / 5 × 16½	3 × 21 / 5 × 18	3 × 21 / 5 × 18
24'	3 × 18 / 5 × 15	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 21 / 5 × 18	3 × 21 / 5 × 18	3 × 21 / 5 × 18	5 × 18	5 × 19½	5 × 19½

ROOF LIVE LOAD = 30 lbs./sq. ft.

BEAM SPAN	ROOF SPAN 20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
8'	3 × 7½	3 × 7½	3 × 7½	3 × 7½	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9
10'	3 × 9	3 × 9	3 × 9	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 12	3 × 12 / 5 × 9
12'	3 × 10½	3 × 10½	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 13½ / 5 × 10½	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12
14'	3 × 12 / 5 × 10½	3 × 13½ / 5 × 10½	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 13½	3 × 15 / 5 × 13½	3 × 16½ / 5 × 13½
16'	3 × 13½ / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 13½	3 × 15 / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 18 / 5 × 15	3 × 18 / 5 × 15
18'	3 × 15 / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 15	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 21 / 5 × 16½	3 × 21 / 5 × 16½
20'	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 21 / 5 × 16½	3 × 21 / 5 × 18	3 × 21 / 5 × 18	5 × 18	5 × 18
22'	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 21 / 5 × 16½	3 × 21 / 5 × 18	3 × 21 / 5 × 18	5 × 18	5 × 19½	5 × 19½	5 × 19½	5 × 19½	5 × 21
24'	3 × 21 / 5 × 18	3 × 21 / 5 × 18	5 × 18	5 × 19½	5 × 19½	5 × 19½	5 × 21	5 × 21	5 × 21	5 × 21	5 × 22½

ROOF LIVE LOAD = 40 lbs./sq. ft.

BEAM SPAN	ROOF SPAN 20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
8'	3 × 7½	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 9	3 × 10½	3 × 10½	3 × 10½	3 × 10½
10'	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 12 / 5 × 9	3 × 12 / 5 × 9	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 13½ / 5 × 10½	3 × 13½ / 5 × 10½
12'	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 12 / 5 × 10½	3 × 13½ / 5 × 10½	3 × 13½ / 5 × 10½	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 12
14'	3 × 13½ / 5 × 12	3 × 13½ / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 12	3 × 15 / 5 × 13½	3 × 15 / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 18 / 5 × 15
16'	3 × 15 / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 16½ / 5 × 13½	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 19½ / 5 × 15	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½
18'	3 × 18 / 5 × 15	3 × 18 / 5 × 15	3 × 19½ / 5 × 15	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 21 / 5 × 16½	3 × 21 / 5 × 18	3 × 21 / 5 × 18	5 × 18	5 × 18
20'	3 × 19½ / 5 × 16½	3 × 19½ / 5 × 16½	3 × 21 / 5 × 16½	3 × 21 / 5 × 18	3 × 21 / 5 × 18	5 × 18	5 × 19½	5 × 19½	5 × 19½	5 × 19½	5 × 21
22'	3 × 21 / 5 × 18	3 × 21 / 5 × 18	5 × 19½	5 × 19½	5 × 19½	5 × 21	5 × 21	5 × 21	5 × 21	5 × 22½	5 × 22½
24'	5 × 19½	5 × 19½	5 × 21	5 × 21	5 × 21	5 × 22½	5 × 22½	5 × 22½	5 × 24	5 × 24	5 × 24

NOTES:

- These tables are for SIMPLE SPAN beams carrying ROOF LOAD only.
- All tables are based on 10 lbs./sq. ft. dead load.
- Refer to Westlam Uniform Load span tables for loads in excess of those listed.

DESIGN SPECIFICATIONS:

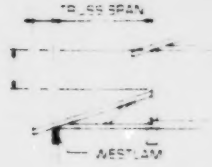
Stress Grade:	Westlam E
Service Grade:	Exterior
Deflection Limitation:	L/360 under Live Load
Modulus of Elasticity (E):	1,500,000 psi.
Service Condition:	Dry
Lamination Size:	1½ inches

GARAGE DOOR HEADER SPAN TABLE

		ROOF LIVE LOAD = 20 lbs./ sq.ft	ROOF LIVE LOAD = 30 lbs./ sq.ft	ROOF LIVE LOAD = 40 lbs./ sq.ft	ROOF LIVE LOAD = 40 lbs./ sq.ft
TRUSS SPAN		8' - 14'	8' - 14'	8' - 10'	12' - 14'
HEADER SPAN	8'	3 × 9	3 × 9	3 × 9	3 × 9
	10'	3 × 9	3 × 9	3 × 9	3 × 9
	12'	3 × 9	3 × 10½	3 × 10½	3 × 10½
	14'	3 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½
	16'	3 × 12 5 × 10½	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 15 5 × 12
	18'	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 16½ 5 × 13½

DESIGN SPECIFICATIONS

Stress Grade	Westlam E
Service Grade	Exterior
Deflection Limitation	L/360 under Live Load
Service Condition	Dry
Lamination Size	1½ inches



NOTES:

- Table is based on SIMPLE SPAN beams carrying ROOF LOAD only.
- Table is based on 10 lbs./sq. ft. Dead Load.
- No allowance for sliding snow or Drift Load from upper roof has been used in this table.
- It is up to the designer's discretion whether or not to allow for them.
- Refer to Westlam Uniform Load Span Tables for loads in excess of those listed.

FLOOR BEAM SPAN TABLE - Single Storey

FLOOR LIVE LOAD = 30 lbs./sq. ft.

		FLOOR JOIST SPAN										
		20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
BEAM SPAN	10'	3 × 9	3 × 9	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 12 5 × 9	3 × 12 5 × 9	3 × 12 5 × 9	3 × 12 5 × 9
	12'	3 × 10½	3 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 15 5 × 12
	14'	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	5 × 13½	5 × 13½	5 × 13½
	16'	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	3 × 15 5 × 13½	5 × 13½	5 × 13½	5 × 13½	5 × 13½	5 × 15	5 × 15	5 × 15
	18'	5 × 13½	5 × 13½	5 × 15	5 × 15	5 × 15	5 × 15	5 × 15	5 × 16½	5 × 16½	5 × 16½	5 × 16½
	20'	5 × 15	5 × 15	5 × 15	5 × 16½	5 × 16½	5 × 16½	5 × 16½	5 × 18	5 × 18	5 × 18	5 × 19

FLOOR LIVE LOAD = 40 lbs./sq. ft.

		FLOOR JOIST SPAN										
		20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
BEAM SPAN	10'	3 × 10½	3 × 10½	3 × 10½	3 × 10½	3 × 12 5 × 9	3 × 12 5 × 9	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½
	12'	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	5 × 12	5 × 12
	14'	3 × 13½ 5 × 12	3 × 13½ 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 13½	5 × 13½	5 × 13½	5 × 13½	5 × 13½	5 × 15	5 × 15
	16'	3 × 15 5 × 13½	5 × 13½	5 × 13½	5 × 15	5 × 15	5 × 15	5 × 15	5 × 15	5 × 16½	5 × 16½	5 × 16½
	18'	5 × 15	5 × 15	5 × 15	5 × 16½	5 × 16½	5 × 16½	5 × 16½	5 × 18	5 × 18	5 × 18	5 × 19
	20'	5 × 16½	5 × 16½	5 × 18	5 × 18	5 × 18	5 × 18	5 × 19½	5 × 19½	5 × 19½	5 × 21	5 × 21

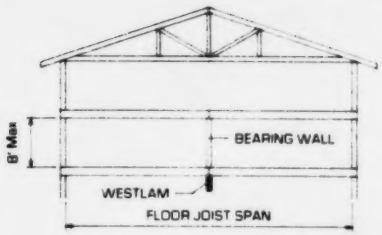
NOTES:

- These tables are for SIMPLE or CONTINUOUS SPAN beams carrying RESIDENTIAL FLOOR LOADS only, and include 10 lbs./sq. ft. dead load.
- Tables are based on SIMPLE SPAN floor joists.
- For CONTINUOUS SPAN joists, multiply the Floor Joist span by 1.25 and enter table at this span.
- Refer to Westlam Uniform Load Span Tables for loads in excess of those listed.

DESIGN SPECIFICATIONS:

Stress Grade:	Westlam E for simple span beams and Westlam Ex for continuous span beams
Service Grade:	Exterior
Deflection Limitation:	L/360 under Live Load
Modulus of Elasticity (E):	1,500,000 psi.
Service Condition:	Dry
Lamination Size:	1½ inches

FLOOR BEAM SPAN TABLE - Two Storey



FOR SIMPLE SPAN BEAMS
1ST FLOOR LIVE LOAD = 40 lbs./sq. ft.
2ND FLOOR LIVE LOAD = 30 lbs./sq. ft.

BEAM SPAN	FLOOR JOIST SPAN										
	20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
8'	3 × 10½	3 × 10½	3 × 12 5 × 9	3 × 12 5 × 9	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 15 5 × 10½	3 × 15 5 × 12
9'	3 × 12 5 × 9	3 × 12 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	5 × 12	5 × 12	5 × 13½
10'	3 × 13½ 5 × 10½	3 × 13½ 5 × 10½	3 × 15 5 × 12	3 × 15 5 × 12	3 × 15 5 × 12	5 × 12	5 × 13½	5 × 13½	5 × 13½	5 × 13½	5 × 15
11'	3 × 15 5 × 12	3 × 15 5 × 12	5 × 12	5 × 13½	5 × 13½	5 × 13½	5 × 13½	5 × 15	5 × 15	5 × 15	5 × 15
12'	5 × 12	5 × 13½	5 × 13½	5 × 13½	5 × 15	5 × 15	5 × 15	5 × 16½	5 × 16½	5 × 16½	5 × 16½
13'	5 × 13½	5 × 13½	5 × 15	5 × 15	5 × 15	5 × 16½	5 × 16½	5 × 16½	5 × 18	5 × 18	5 × 18
14'	5 × 15	5 × 15	5 × 15	5 × 16½	5 × 16½	5 × 18	5 × 18	5 × 18	5 × 19½ 6¾ × 16½	5 × 19½ 6¾ × 16½	5 × 19½ 6¾ × 16½
16'	5 × 16½	5 × 16½	5 × 18	5 × 18	5 × 19½ 6¾ × 16½	5 × 19½ 6¾ × 16½	5 × 21 6¾ × 18	5 × 21 6¾ × 18	5 × 22½ 6¾ × 18	5 × 22½ 6¾ × 19½	5 × 24 6¾ × 19½

FOR CONTINUOUS SPAN BEAMS
1ST FLOOR LIVE LOAD = 40 lbs./sq. ft.
2ND FLOOR LIVE LOAD = 30 lbs./sq. ft.

BEAM SPAN	FLOOR JOIST SPAN										
	20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
8'	3 × 12 5 × 9	3 × 12 5 × 9	3 × 13½ 5 × 9	3 × 13½ 5 × 10½	3 × 15 5 × 10½	5 × 10½	5 × 10½	5 × 12	5 × 12	5 × 13½	5 × 13½
9'	3 × 13½ 5 × 9	3 × 13½ 5 × 10½	3 × 15 5 × 10½	5 × 10½	5 × 12	5 × 12	5 × 13½	5 × 13½	5 × 15	5 × 15	5 × 15
10'	3 × 15 5 × 10½	3 × 15 5 × 10½	5 × 12	5 × 12	5 × 13½	5 × 13½	5 × 15	5 × 15	5 × 16½	5 × 16½	5 × 18
11'	5 × 12	5 × 12	5 × 12	5 × 13½	5 × 13½	5 × 15	5 × 16½	5 × 16½	5 × 18	5 × 18	5 × 19½ 6¾ × 15
12'	5 × 12	5 × 13½	5 × 13½	5 × 15	5 × 15	5 × 16½	5 × 18	5 × 18	5 × 19½ 6¾ × 15	5 × 21 6¾ × 16½	5 × 22½ 6¾ × 16½
13'	5 × 13½	5 × 13½	5 × 15	5 × 16½	5 × 16½	5 × 18	5 × 19½ 6¾ × 15	5 × 21 6¾ × 16½	5 × 22½ 6¾ × 16½	5 × 22½ 6¾ × 18	5 × 24 6¾ × 19½
14'	5 × 15	5 × 15	5 × 16½	5 × 18	5 × 19½ 6¾ × 15	5 × 21 6¾ × 16½	5 × 21 6¾ × 16½	5 × 22½ 6¾ × 18	5 × 24 6¾ × 19½	6¾ × 19½	6¾ × 21
16'	5 × 16½	5 × 18	5 × 19½ 6¾ × 15	5 × 21 6¾ × 16½	5 × 22½ 6¾ × 18	5 × 24 6¾ × 18	6¾ × 19½	6¾ × 21	6¾ × 22½	6¾ × 24	6¾ × 24

NOTES:

- These tables are based on beams carrying RESIDENTIAL FLOOR LOADS only, and include 10 lbs./sq. ft. dead load.
- Tables are based on SIMPLE span floor joists.
- For continuous span joists, multiply the floor joists span by 1.25 and enter the table at this span.
- Refer to Westlam Uniform Load span tables for loads in excess of those listed.

DESIGN SPECIFICATIONS:

Stress Grade:	Westlam E for simple span beams and Westlam Ex for continuous span beams
Service Grade:	Exterior
Deflection Limitation:	L/360 under Live Load
Modulus of Elasticity (E):	1,500,000 psi.
Service Condition:	Dry
Lamination Size:	1½ inches

COLUMN / SELECTION TABLE

MAXIMUM ALLOWABLE LOAD IN POUNDS

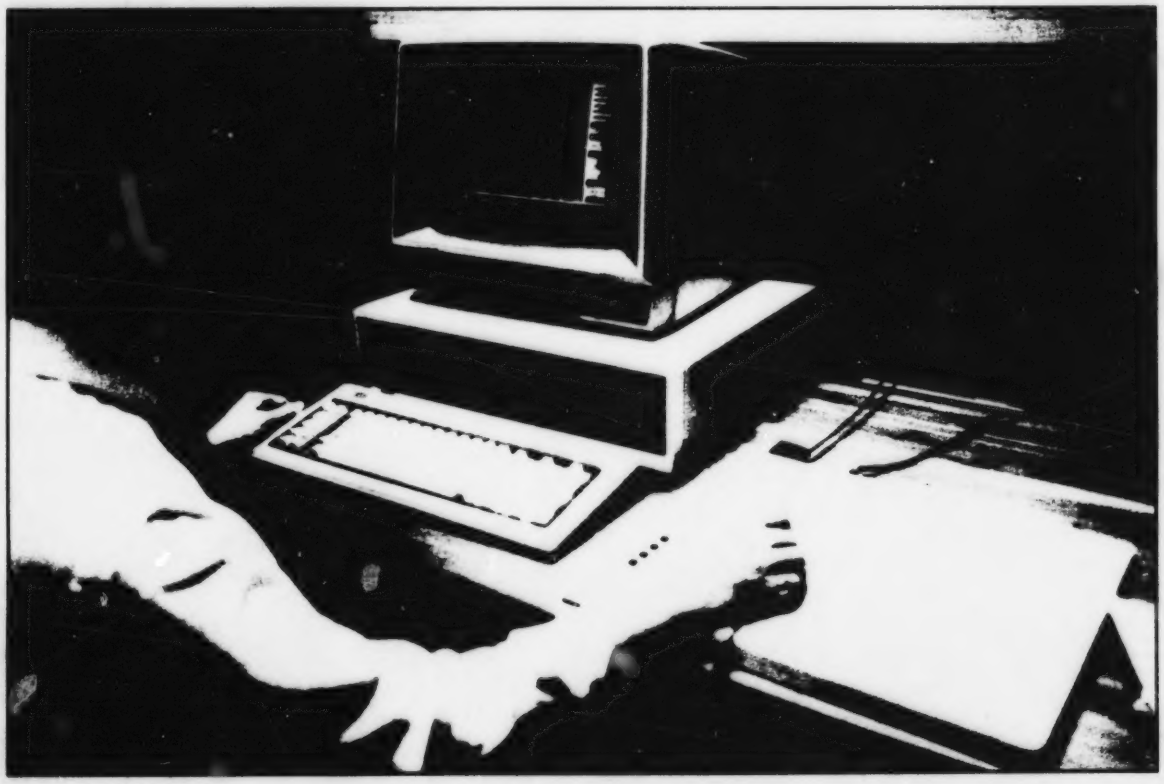
LENGTH	COLUMN SIZES										
	3 × 4½	3 × 6	3 × 7½	5 × 4½	5 × 6	5 × 7½	5 × 9	6¾ × 6	6¾ × 7½	6¾ × 9	6¾ × 10½
8'	4.800	6.300	7.900	15.600	22.500	28.100	33.700	30.800	39.400	47.200	55.100
10'	3.000	4.100	5.100	10.900	17.900	23.400	26.900	27.900	37.200	44.600	52.000
12'	2.100	2.800	3.500	7.600	12.500	15.600	18.700	22.800	33.200	39.800	46.400
14'				5.600	9.200	11.500	13.800	14.400	26.600	32.000	37.300
16'				4.300	7.000	8.800	10.500	12.900	20.400	24.500	28.600
18'				3.400	5.600	6.900	8.300	10.200	16.100	19.300	22.600
20'					4.500	5.600	6.700	8.300	13.100	15.700	18.300

NOTES:
(1) Table based on concentrically loaded columns
(2) Normal Duration of Load

DESIGN SPECIFICATIONS:

Stress Grade:	Westlam C
Service Grade:	Exterior
Modulus of Elasticity (E):	1,400,000 psi
Service Condition:	Dry
Lamination Size:	1½ inches

If all these conditions do not apply, do not use the tables.



ARCHITECTURAL SPECIFICATIONS

1.0. GENERAL

1.1. WORK INCLUDED

1.2. RELATED WORK (Specified Elsewhere)

Supply and Installation of

.1 Anchor Plates or Anchorage bolts in masonry or concrete
.2 Structural Steel
.3 Site Finishing
.4 Sawn Timber
.5 Wood Decking
.6 Miscellaneous Steel

1.3. REFERENCE STANDARDS

.1 C.S.A. CAN3-086-M84 Engineering Design in Wood
.2 C.S.A. 0112.7-M Series 1977 Resorcinol and Phenol-Resorcinol Resin Adhesives for Wood (Room and Intermediate Temperature Curing)
.3 C.S.A. CAN3-G40.21-M81 Structural Quality Steels
.4 C.S.A. G164-M81 Hot Dip Galvanizing of Irregularly Shaped Articles
.5 ASTM-A307-82a Carbon Steel Externally Threaded Standard Fasteners
.6 ASTM-A47-77 Malleable Iron Castings

1.4. .1 WESTLAM shall be manufactured by Western Archnb and in accordance with Westlam Manufacturing Standard.
.2 Plant inspections shall be maintained by Warnock Hersey Professional Services Ltd.

1.5. SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section _____. (In the case where the glulam supplier is not providing any hardware, and beams are provided without any special cutting or drilling, shop drawings are not required.)
.2 Indicate Stress Grade, Service Grade, Surface Grade, Shop Applied Finishes, Shop and Erection Details, including pertinent dimensions, cuts, holes and camber.
.3 Shop drawings for work designed by fabricator shall bear seal and signature of a Professional Engineer.

1.6. DELIVERY STORAGE HANDLING

.1 Arrange delivery of WESTLAM in accordance with the construction schedule.
.2 WESTLAM members shall be delivered to the site wrapped for protection. Except at bearing points wrapping shall not be removed until the roof decking is in place.
.3 WESTLAM stored on site shall be raised off the ground by at least 6", stacked - using 3" separation spacers, and covered with a loosely fitting water-proof tarp. Wrapping shall be slit on the underside to prevent moisture accumulation.
.4 Members shall be handled with padded non-marring slings.
.5 When necessary to lift member with wire rope slings, protect corners with wood blocking.

2.0. PRODUCTS

2.1 MATERIAL

.1 Laminating Stock: Western Spruce and Lodgpole Pine
.2 Adhesive: Phenol-Resorcinol Resin Adhesive - conforming to CSA 0122.7-M77.
.3 Sealer: Penetrating, non-yellowing liquid which will temporarily protect against moisture entry.
.4 Bolts: ASTM-A307
.5 Connecting Steel: To CAN3-G40.21-81
.6 Galvanizing: To CSA-G164-81

2.2. FABRICATION

Fabricate WESTLAM in accordance with drawings and the Westlam Manufacturing Standard.

Fabricate members to the following specifications:

.1 Stress Grade:
- WESTLAM E for members in positive bending moment only.
- WESTLAM EX for members subjected to both positive and negative bending moment or axial tension

.2 Service Grade: EXTERIOR
.3 Surface Grade: _____
.4 Apply single coat of sealer to all members; 2 coats to end grain surfaces.
.5 Do not splice or joint members in locations other than those indicated on drawings.
.6 Fabricate steel connections in accordance with sizes and profiles indicated on drawings.
.7 Clean, prepare and shop prime connections.

Do not prime surfaces to be in contact with cementitious matter.

3.0. EXECUTION

3.1. ERECTION

.1 Erect WESTLAM in accordance with CAN3-086-M84 and as indicated on drawings.
.2 Brace and anchor material until permanently fixed.
.3 Make adequate provision for erection stresses.
.4 Fit members closely and accurately to other members and other asemblies.
.5 Do no field cutting or alteration of members without approval of the Consulting Engineer.

WESTERN ARCHRIB

HEAD OFFICE

18 EDMONTON, ALBERTA T6C

1667 TELEPHONE (403) 465

DISTRIBUTED BY

Western Archrib - A Division of 316291 Alberta Ltd.
Mailing Address: P.O. Box 5648, Edmonton, Alberta T6C 4G1
Plant Location: 4315 - 92 Avenue, Edmonton, Alberta

Phone: (403) 465-9771
Toll Free No.: 1-800-661-7359
Fax No.: (403) 469-1667

DATE: _____ TIME:_____

COMPANY: _____ CONTACT: _____ TELEPHONE: _____

BEAM CLEAR SPAN: _____ FLOOR _____ ROOF _____

LIVE LOAD:_____ (PLF)

TOTAL LOAD: _____ (PLF)

POINT LOADS: _____(L.L.) _____(D.L.) @ _____ FROM LEFT SIDE

: _____(L.L.) _____(D.L.) @ _____ FROM LEFT SIDE

: _____(L.L.) _____(D.L.) @ _____ FROM LEFT SIDE

: _____ (L.L.) _____(D.L.) @ _____ FROM LEFT SIDE

CONDITION: DRY _____ WET _____

NOTES: _____

_____

_____

APPENDIX "F"

Typical Beam Design
request and the Engineer's
Certificate

KENT TRUSSES LTD.
ROOF AND FLOOR TRUSSES
P.O. BOX 190 · SUNDRIDGE, ONTARIO P0A 1Z0
BUS. (705) 384-5326 1-800-461-7892

BEAM DESIGN REQUEST - KENT TRUSSES - SUNDRIDGE

ATTENTION: Kevin DATE: Aug 27 TIME: 8:30

FROM: Gerald PAGE: 1 OF 1 ESTIM.: MV

BEAM CLEAR SPAN: 27' - 1" FLOOR ___ ROOF ✓

LIVE LOAD : 870 (PLF) TOTAL LOAD : 1100 (PLF)

CONCENTRATED LOADS: _____(L.L.)_____(D.L.) @_____ FROM LEFT SIDE

: _____(L.L.)_____(D.L.) @_____ FROM LEFT SIDE

: _____(L.L.)_____(D.L.) @_____ FROM LEFT SIDE

: _____(L.L.)_____(D.L.) @_____ FROM LEFT SIDE

SERVICE CONDITION: DRY

NOTES: Must have depth equal to or less than 24"

Name: _____ Date: _____

Address: _____

_____

_____

_____

Project: _____

_____

Dear sir,

This is to confirm that the glued-laminated timber units (and connecting hardware where specified) supplied for the above noted project, and as listed below, have been designed in accordance with drawings produced by

(Designer) _____ (Date) _____

and are capable of resisting the following applied loads.

Dead Loads

Roof: _____

Floor: _____

Partitions: _____

Live Loads

(A) Due to snow: _____

(B) Due to use and occupancy:

1> Residential area other than Bedrooms: _____

2> Residential bedrooms: _____

3> Other (Specify)

_____ : _____

_____ : _____

Wood Species _____

Service Grade _____

Limitations

No responsibility is assumed for:

(A) The structural adequacy of any component not specified herein.

(B) Use of the units supplied other than in accordance with the intent of the drawings specified.

(C) Erection or installation of the units supplied.

(D) On Site storage and handling.

It is the responsibility of others to ascertain whether the design loads stated meet or exceed the actual loads imposed and that the live loads stated agree with the local building code or historic climatic record.

UNITS SUPPLIED

SIZE *	LOCATION OR DESCRIPTION	STRESS GRADE

* Beam sizes listed assume that both adequate bearing area and lateral support are provided at all points of bearing and that the compression edges of the beams are laterally supported at intervals not exceeding 24" (610mm) O.C.

Conditions

_____

_____

_____

_____

ENGINEER SEAL

WESTERN ARCHRIB

WESTLAM

P.O.Box 5648
Edmonton, Alberta
T6C 4G1
Tel. (403)-465-9771
Tx. (403)-468-1667